



**Atacama
Large
Millimeter /
submillimeter
Array**

ALMA Product Tree

ALMA-80.03.00.00-001-T-LIS

Version: T

2020-04-14

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Change Record

Version	Date	Affected Section(s)	Change Request #	Reason/Initiation/Remarks
A	2002-03-22	All	None	First Issue
B	2002-03-29	Site, Antennas Front Ends	None	Changed Site with Radford's PT, added Prototype Antenna PT, added Evaluation Receiver
C	2002-04-18	Backend, Management, Correlator	None	Major revision to these areas, based on requests from Sramek, Gray, and Treacy respectively
D	2002-05-08	Operations, Management, Computing, Systems, Science	None	Major revision, changes to document structure (first column dropped), significant changes to sections (see affected sections column), updated sections from Gray, Gray, Glendenning, Gray, and Wooten (and Radford), respectively
E	2002-05-23	Front End and Systems	None	Update FE PT branch, mainly first local oscillator related products; Systems, added in Quality Assurance section
F	2002-05-28	Computing	None	Update Computing PT branch, based upon changes by Ralph Marsen
G	2002-06-07	Antennas, Front End, Site	None	Update Antenna PT branch, based upon changes by J. Kingsley and S. Stanghellini, Added holography to FrontEnd, as per P. Gray, Added ATF site area to Sites, as per P. Gray
H	2002-07-10	Site, Antennas	None	Changed document number and formatting to fit with revised template and numbering requirements, corrected numbering in nutator section of Antenna PT branch, to add in skipped sequential numbers
I			None	Issue letter not used. Skipped.
J	2002-07-10	Site	None	Site Changed document number and formatting to fit with revised template and numbering requirements, corrected numbering in nutator section of Antenna PT branch, to add in skipped sequential numbers
K	2002-07-22	Site	None	Added in 20.04.05.00 and 20.10.00.00, as per Simon Radford's request.
L	2002-11-01	Backend, overall row headers, computing	None	Added in ATF Evaluation Back End segment, Changed the computing monitor and control general from 05 to 00, deleted the names of the level categories.
M	2004-03-02	Site, Antenna, Frontend, Backend, Computing, and Systems	ALMA-80.03.00.00-002-A-CRE	Major updates to the product tree, within the sections stated. ATF and prototype items removed and relocated to separate ATF product tree document numbered ALMA-80.03.00.00-004-A-LIS
N	2005-01-31	Backend, Frontend	ALMA-80.03.00.00-007-A-CRE	Major updates to the product tree, within the sections stated as per ALMA-80.03.00.00-007-A-CRE.



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O	2007-05-23	All	ALMA-80.03.00.00-008-A-CRE	General update as per ALMA-80.03.00.00-008-A-CRE
P	2010-05-12	All	ALMA-80.03.00.00-010-A-CRE	General update as per ALMA-80.03.00.00-010-A-CRE
Q	2012-03-05	All	ALMA-80.03.00.00-011-B-CRE, ALMA-80.03.00.00-0012-A-CRE	General update as per ALMA-80.03.00.00-011-B-CRE and ALMA-80.03.00.00-0012-A-CRE
R	2015-08-21	40.10.05	ALMA-80.03.00.00-0014-A-CRE	Band 5 First LO section update
S	2019-05-24	40.01, 40.02, 40.10, 40.11 33.60, 40.09	ALMA-80.03.00.00-0018-A-CRE, ALMA-80.03.00.00-0015-A-CRE	Band 1 CI numbers updated/incorporated, EU drive system service bench and FE CPDS and bias module test equipment updates included
T	2020-04-14	80.15, 20.08.14, 60.01.07, 05.00, 05.11, 05.12 33.50 54.15, 54.20, 64, 64.10, 64.20, 70.44	ALMA-80.03.00.00-0019-A-CRE ALMA-33.00.00.00-0409-A-CRE ALMA-80.03.00.00-0021-A-CRE	Membranes (adding details), OSF Site Heliport (removing the entry), 64-Antenna Correlator Tunable Filter Boards (adding details), ALMA Phasing Project (adding the APP PBS), Polarization Calibration Source (adding the PCS PBS) ESO ALMA antennas power monitoring system ACA Spectrometer CI numbers

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1 Description

1.1 Purpose

This document defines the ALMA Product Tree and explains its use within the project. The traditional purpose of a product tree is to serve as a hierarchical breakdown of the systems, subsystems, assemblies and parts for a project. The ALMA Product tree loosely follows this pattern, however it does not follow a rigid “sub-systems / modules / units” component breakdown, and has been expanded to include items that are not technically configuration items. This flexibility allows the ALMA Product Tree to serve as the structure for a document numbering scheme for the project. The manner which document numbers are assigned is described in the ALMA Documentation Standards (RD01).

1.2 Scope

This document serves to define all branches of the Product Tree, to a level adequate to enable its use as a structure for document numbering.

2 Related documents and Acronyms

2.1 Reference Documents

The documents in the following list are referenced by this document to the extent specified. If not explicitly stated differently, the latest version of the document is valid.

Reference Doc. #	Document Title	ALMA Document Number
RD01	ALMA Documentation Standards	ALMA-80.02.00.00-003-G-STD
RD02	ALMA Acronyms and Abbreviations	ALMA-80.02.00.00-004-A-LIS

2.2 Abbreviations and Acronyms

The list of acronyms and abbreviations used within this document are given below. For a complete set of acronyms and abbreviations, please see ALMA Official Acronyms and Abbreviations (RD02).

Abbreviation or Acronym	Non-abbreviated Reference
ALMA	Atacama Large Millimeter Array
ATF	ALMA Test Facility
ICD	Interface Control Document
IPT	Integrated Product Team



3 ALMA Product Tree

Level 1	Level 2	Level 3	Level 4	Level 5
00-Operations				
	00.00-General			
		00.00.00-General		
			00.00.00.00-General	
05-New Developments				
	05.00-General			
		05.00.00-General		
			05.00.00.00-General	
	05.11-ALMA Phasing Project			
		05.11.00-General		
			05.11.00.00-General	
		05.11.10-System		
			05.11.10.00-General	
		05.11.20-Master Reference		
			05.11.20.00-General	
		05.11.21-Hydrogen Maser		
			05.11.21.00-General	
		05.11.22-PPS (pulse per second)		
			05.11.22.00-General	
		05.11.30-Correlator		
			05.11.30.00-General	
		05.11.31-PIC Card		
			05.11.31.00-General	
		05.11.32-Power Supply Modifications		
			05.11.32.00-General	
		05.11.33-Correlator Rack Cabling		
			05.11.33.00-General	
		05.11.34-Correlator Rack Mechanical Modifications		
			05.11.34.00-General	
		05.11.35-Timing Distribution		
			05.11.35.00-General	
		05.11.40-Fiber Link		
			05.11.40.00-General	
		05.11.41-Multiplexer (Mux)		
			05.11.41.00-General	
		05.11.42-Demultiplexer (DeMux)		
			05.11.42.00-General	



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		05.11.50-VLBI Recorder		
			05.11.50.00-General	
		05.11.51-Host Computer		
			05.11.51.00-General	
		05.11.52-Expansion Unit		
			05.11.52.00-General	
		05.11.53-Disc Module		
			05.11.53.00-General	
		05.11.60-Software (General)		
			05.11.60.00-General	
		05.11.61-VLBI Observing Mode (Control/Correlator)		
			05.11.61.00-General	
		05.11.62-Phase Solver (TelCal)		
			05.11.62.00-General	
		05.11.63-Offline		
			05.11.63.00-General	
	05.12-Polarization Calibration Source			
		05.12.00-General		
			05.12.00.00-General	
		05.12.01-Photonic Signal Generator Unit		
			05.12.01.00-General	
			05.12.01.01-Rubidium Frequency Standard	
			05.12.01.02-Synthesizer	
			05.12.01.03-MZM Laser Synthesizer	
			05.12.01.04-Photonic Signal Generator Unit Software	
		05.12.02-Transmitter Unit		
			05.12.02.00-General	
			05.12.02.01-Waterproof Enclosure	
			05.12.02.02-Transmitter Window Film	
			05.12.02.03-B3 Artificial Source Assembly	
			05.12.02.04-B6/B7 Artificial Source Assembly	
			05.12.02.05-Polarizer Assembly	
			05.12.02.06-Photonic Source Assembly	



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			05.12.02.07-Heater Assembly	
			05.12.02.08-Transmitter Unit Software	
10-Management				
	10.00-General			
		10.00.00-General		
			10.00.00.00-General	
	10.01-ALMA Coordinating Committee/ALMA Board			
		10.01.00-General		
			10.01.00.00-General	
		10.01.01-Memoranda		
			10.01.01.00-General	
		10.01.02-Reports		
			10.01.02.00-General	
		10.01.03-Meetings/Presentations		
			10.01.03.00-General	
	10.02-ALMA Management Advisory Committee			
		10.02.00-General		
			10.02.00.00-General	
		10.02.01-Memoranda		
			10.02.01.00-General	
		10.02.02-Reports		
			10.02.02.00-General	
		10.02.03-Meetings/Presentations		
			10.02.03.00-General	
	10.03-ALMA Scientific Advisory Committee			
		10.03.00-General		
			10.03.00.00-General	
		10.03.01-Memoranda		
			10.03.01.00-General	
		10.03.02-Reports		
			10.03.02.00-General	
		10.03.03-Meetings/Presentations		
			10.03.03.00-General	
	10.04-Joint ALMA Office			
		10.04.00-General		
			10.04.00.00-General	



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		10.04.01-Memoranda		
			10.04.01.00-General	
		10.04.02-Reports		
			10.04.02.00-General	
		10.04.03-Meetings/Presentations		
			10.04.03.00-General	
		10.04.04-WBS/WP/WE		
			10.04.04.00-General	
		10.04.05-Budget		
			10.04.05.00-General	
		10.04.06-Schedule		
			10.04.06.00-General	
		10.04.07-Resources		
			10.04.07.00-General	
		10.04.08-Procedures		
	10.05-ALMA Executive Committee			
		10.05.00-General		
			10.05.00.00-General	
		10.05.01-Memoranda		
			10.05.01.00-General	
		10.05.02-Reports		
			10.05.02.00-General	
		10.05.03-Meetings/Presentations		
			10.05.03.00-General	
		10.05.04-WBS/WP/WE		
			10.05.04.00-General	
		10.05.05-Budget		
			10.05.05.00-General	
		10.05.06-Schedule		
			10.05.06.00-General	
		10.05.07-Resources		
			10.05.07.00-General	
	10.06-European Project Office			
		10.06.00-General		
			10.06.00.00-General	
		10.06.01-Memoranda		
			10.06.01.00-General	
		10.06.02-Reports		
			10.06.02.00-General	
		10.06.03-Meetings/Presentations		
			10.06.03.00-General	



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		10.06.04-WBS/WP/WE		
			10.06.04.00-General	
		10.06.05-Budget		
			10.06.05.00-General	
		10.06.06-Schedule		
			10.06.06.00-General	
		10.06.07-Resources		
			10.06.07.00-General	
	10.07-North American Project Office			
		10.07.00-General		
			10.07.00.00-General	
		10.07.01-Memoranda		
			10.07.01.00-General	
		10.07.02-Reports		
			10.07.02.00-General	
		10.07.03-Meetings/Presentations		
			10.07.03.00-General	
		10.07.04-WBS/WP/WE		
			10.07.04.00-General	
		10.07.05-Budget		
			10.07.05.00-General	
		10.07.06-Schedule		
			10.07.06.00-General	
		10.07.07-Resources		
			10.07.07.00-General	
	10.08-Project Safety			
		10.08.00-General		
			10.08.00.00-General	
			10.08.00.00-General	
		10.08.01-Project Safety - European		
			10.08.01.00-General	
		10.08.02-Project Safety - North American		
			10.08.02.00-General	
		10.08.03-Project Safety - Chile		
			10.08.03.00-General	
		10.08.04-Project Safety - Japan		
			10.08.04.00-General	
	10.09-Japanese Office			
		10.09.00-General		
			10.09.00.00-General	



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		10.09.01-Memoranda		
			10.09.01.00-General	
		10.09.02-Reports		
			10.09.02.00-General	
		10.09.03-Meetings/Presentations		
			10.09.03.00-General	
		10.09.04-WBS/WP/WE		
			10.09.04.00-General	
		10.09.05-Budget		
			10.09.05.00-General	
		10.09.06-Schedule		
			10.09.06.00-General	
		10.09.07-Resources		
			10.09.07.00-General	
11-LOGISTICS				
	11.00-Chile			
	11.01-North America			
	11.02-Europe			
	11.03-Japan			
20-ALMA Chile Infrastructure				
	20.00-General			
		20.00.00-General		
			20.00.00.00-General	
	20.01-Array Site Buildings			
		20.01.00-General		
			20.01.00.00-General	
		20.01.01-Refuge		
			20.01.01.00-General	
		20.01.02-Technical Building		
			20.01.02.00-General	
			20.01.02.01-Civil	
			20.01.02.02-Structural	
			20.01.02.03-Architectural	
			20.01.02.04-Plumbing	
			20.01.02.05-Mechanical	
			20.01.02.06-Fire Protection	
			20.01.02.07-Electrical	
			20.01.02.08-Controls	
			20.01.02.09-Communications and tele/data	



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			20.01.02.10-Lightning Protection and Grounding	
			20.01.02.11-Furnishings and Equipment	
		20.01.03-Hangar		
			20.01.03.00-General	
			20.01.03.01-Civil	
			20.01.03.02-Structural	
			20.01.03.03-Architectural	
			20.01.03.04-Plumbing	
			20.01.03.05-Mechanical	
			20.01.03.06-Fire Protection	
			20.01.03.07-Electrical	
			20.01.03.08-Controls	
			20.01.03.09-Communications and tele/data	
			20.01.03.10-Lightning Protection and Grounding	
			20.01.03.11-Furnishings and Equipment	
		20.01.04-Meteorology Stations		
			20.01.04.00-General	
		20.01.05-Utility Buildings		
			20.01.05.00-General	
	20.02-Antenna Stations			
		20.02.00-General		
			20.02.00.00-General	
		20.02.01-Foundation - Central Cluster		
			20.02.01.00-General	
			20.02.01.01-Civil	
			20.02.01.02-Structural	
			20.02.01.03-Architectural	
			20.02.01.04-Plumbing	
			20.02.01.05-Mechanical	
			20.02.01.06-Fire Protection	
			20.02.01.07-Electrical	
			20.02.01.08-Controls	
			20.02.01.09-Communications and tele/data	
			20.02.01.10-Lightning Protection and Grounding	
			20.02.01.11-Furnishings and Equipment	



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		20.02.02-Foundation - Isolated Soft Soil		
			20.02.02.00-General	
		20.02.03-Foundation - Isolated Hard Soil		
			20.02.03.00-General	
		20.02.04-Station Equipment		
			20.02.04.00-General	
			20.02.04.01-Civil	
			20.02.04.02-Structural	
			20.02.04.03-Architectural	
			20.02.04.04-Plumbing	
			20.02.04.05-Mechanical	
			20.02.04.06-Fire Protection	
			20.02.04.07-Electrical	
			20.02.04.08-Controls	
			20.02.04.09-Communications and tele/data	
			20.02.04.10-Lightning Protection and Grounding	
			20.02.04.11-Furnishings and Equipment	
	20.03-Antenna Stations Interconnect Roads			
		20.03.00-General		
			20.03.00.00-General	
			20.03.00.01-Civil	
			20.03.00.02-Structural	
			20.03.00.03-Architectural	
			20.03.00.04-Plumbing	
			20.03.00.05-Mechanical	
			20.03.00.06-Fire Protection	
			20.03.00.07-Electrical	
			20.03.00.08-Controls	
			20.03.00.09-Communications / Data Transfer	
			20.03.00.10-Lightning Protection and Grounding	
			20.03.00.11-Furnishings and Equipment	
	20.04-Array Site Utility Interconnects			
		20.04.00-General		
			20.04.00.00-General	
		20.04.01-Fiber Optics		



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			20.04.01.00-General	
			20.04.01.01-Civil	
			20.04.01.02-Structural	
			20.04.01.03-Architectural	
			20.04.01.04-Plumbing	
			20.04.01.05-Mechanical	
			20.04.01.06-Fire Protection	
			20.04.01.07-Electrical	
			20.04.01.08-Controls	
			20.04.01.09-Communications and tele/data	
			20.04.01.10-Lightning Protection and Grounding	
			20.04.01.11-Furnishings and Equipment	
		20.04.02-Low Voltage (400V)		
			20.04.02.00-General	
			20.04.02.01-Civil	
			20.04.02.02-Structural	
			20.04.02.03-Architectural	
			20.04.02.04-Plumbing	
			20.04.02.05-Mechanical	
			20.04.02.06-Fire Protection	
			20.04.02.07-Electrical	
			20.04.02.08-Controls	
			20.04.02.09-Communications and tele/data	
			20.04.02.10-Lightning Protection and Grounding	
			20.04.02.11-Furnishings and Equipment	
		20.04.03-Medium Voltage (23kV)		
			20.04.03.00-General	
			20.04.03.01-Civil	
			20.04.03.02-Structural	
			20.04.03.03-Architectural	
			20.04.03.04-Plumbing	
			20.04.03.05-Mechanical	
			20.04.03.06-Fire Protection	
			20.04.03.07-Electrical	
			20.04.03.08-Controls	
			20.04.03.09-Communications and tele/data	
			20.04.03.10-Lightning Protection and Grounding	



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			20.04.03.11-Furnishings and Equipment	
		20.04.04-Trenches		
			20.04.04.00-General	
			20.04.04.01-Civil	
			20.04.04.02-Structural	
			20.04.04.03-Architectural	
			20.04.04.04-Plumbing	
			20.04.04.05-Mechanical	
			20.04.04.06-Fire Protection	
			20.04.04.07-Electrical	
			20.04.04.08-Controls	
			20.04.04.09-Communications and tele/data	
			20.04.04.10-Lightning Protection and Grounding	
			20.04.04.11-Furnishings and Equipment	
		20.04.05-Water and Sewer System		
			20.04.05.00-General	
			20.04.05.01-Civil	
			20.04.05.02-Structural	
			20.04.05.03-Architectural	
			20.04.05.04-Plumbing	
			20.04.05.05-Mechanical	
			20.04.05.06-Fire Protection	
			20.04.05.07-Electrical	
			20.04.05.08-Controls	
			20.04.05.09-Communications and tele/data	
			20.04.05.10-Lightning Protection and Grounding	
			20.04.05.11-Furnishings and Equipment	
		20.04.06 Medium to Low Voltage		
	20.05-Array Site Power Generation			
		20.05.00-General		
			20.05.00.00-General	
		20.05.01-Power and Energy Supply		
		20.05.02-High-Voltage Transmission Line		
		20.05.03-OSF High-Voltage Switchyard		
			20.05.03.00 Layout	



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			20.05.03.01 Civil	
			20.05.03.02 Electrical	
			20.05.03.03 Mechanical	
			20.05.03.04 Fire protection	
			20.05.03.05 Lightning Protection and Grounding	
		20.05.04-OSF Medium-Voltage (23 kV) Substations		
			20.05.04.00 Layout	
			20.05.04.01 Civil	
			20.05.04.02 Electrical	
			20.05.04.03 Mechanical	
			20.05.04.04 Fire protection	
			20.05.04.05 Lightning Protection and Grounding	
		20.05.05-AOS Medium-Voltage (23 kV) Substation		
			20.05.05.00 Layout	
			20.05.05.01 Civil	
			20.05.05.02 Electrical	
			20.05.05.03 Mechanical	
			20.05.05.04 Fire protection	
			20.05.05.05 Lightning Protection and Grounding	
		20.05.06-OSF to AOS Medium Voltage (23kV) Underground Line		
			20.05.06.00 Layout	
			20.05.06.01 Civil	
			20.05.06.02 Electrical	
			20.05.06.03 Mechanical	
			20.05.06.04 Fire protection	
			20.05.06.05 Lightning Protection and Grounding	
		20.05.07-Multi-fuel Power Generation		
	20.06-Site Access Road (CH23 to AOS)			
		20.06.00-General		
			20.06.00.00-General	



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			20.06.00.01-Civil work	
			20.06.00.02-Structural	
			20.06.00.03-Pavements	
			20.06.00.04-Road furnishings (protective and directive devices)	
		20.06.01-Road from CH23 to OSF		
			20.06.01.00-General	
			20.06.01.01-Civil work	
			20.06.01.02-Structural	
			20.06.01.03-Pavements	
			20.06.01.04-Road furnishings (protective and directive devices)	
		20.06.02-Road from OSF to AOS		
			20.06.02.00-General	
			20.06.02.01-Civil work	
			20.06.02.02-Structural	
			20.06.02.03-Pavements	
			20.06.02.04-Road furnishings (protective and directive devices)	
	20.07-Link Communications (Array Site-OSF)			
		20.07.00-General		
			20.07.00.00-General	
		20.07.01-Fiber Optics		
			20.07.01.00-General	
		20.07.02-Trenches		
			20.07.02.00-General	
	20.08-Operations Support Facility (OSF) Buildings			
		20.08.00-General		
			20.08.00.00-General	
			20.08.00.01-Civil	
			20.08.00.02-Structural	
			20.08.00.03-Architectural	
			20.08.00.04-Plumbing	
			20.08.00.05-Mechanical	
			20.08.00.06-Fire Protection	
			20.08.00.07-Electrical	
			20.08.00.08-Controls	
			20.08.00.09- Communications / Data Transfer	



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			20.08.00.10-Lightning Protection and Grounding	
			20.08.00.11-Furnishings and Equipment	
		20.08.01-Road, Site work and Landscaping		
			20.08.01.00-General	
			20.08.01.01-Civil	
			20.08.01.02-Structural	
			20.08.01.03-Architectural	
			20.08.01.04-Plumbing	
			20.08.01.05-Mechanical	
			20.08.01.06-Fire Protection	
			20.08.01.07-Electrical	
			20.08.01.08-Controls	
			20.08.01.09-Communications / Data Transfer	
			20.08.01.10-Lightning Protection and Grounding	
			20.08.01.11-Furnishings and Equipment	
		20.08.02-Medium Voltage Power Generation and Distribution		
			20.08.02.00-General	
			20.08.02.01-Civil	
			20.08.02.02-Structural	
			20.08.02.03-Architectural	
			20.08.02.04-Plumbing	
			20.08.02.05-Mechanical	
			20.08.02.06-Fire Protection	
			20.08.02.07-Electrical	
			20.08.02.08-Controls	
			20.08.02.09-Communications / Data Transfer	
			20.08.02.10-Lightning Protection and Grounding	
			20.08.02.11-Furnishings and Equipment	
		20.08.03-Water Supply, Storage and Distribution Systems		
			20.08.03.00-General	
			20.08.03.01-Civil	
			20.08.03.02-Structural	
			20.08.03.03-Architectural	



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			20.08.03.04-Plumbing	
			20.08.03.05-Mechanical	
			20.08.03.06-Fire Protection	
			20.08.03.07-Electrical	
			20.08.03.08-Controls	
			20.08.03.09-Communications / Data Transfer	
			20.08.03.10-Lightning Protection and Grounding	
			20.08.03.11-Furnishings and Equipment	
		20.08.04-Vehicle Fuel Supply		
			20.08.04.00-General	
			20.08.04.01-Civil	
			20.08.04.02-Structural	
			20.08.04.03-Architectural	
			20.08.04.04-Plumbing	
			20.08.04.05-Mechanical	
			20.08.04.06-Fire Protection	
			20.08.04.07-Electrical	
			20.08.04.08-Controls	
			20.08.04.09-Communications / Data Transfer	
			20.08.04.10-Lightning Protection and Grounding	
			20.08.04.11-Furnishings and Equipment	
		20.08.05-Low Voltage power Distribution		
			20.08.05.00-General	
			20.08.05.01-Civil	
			20.08.05.02-Structural	
			20.08.05.03-Architectural	
			20.08.05.04-Plumbing	
			20.08.05.05-Mechanical	
			20.08.05.06-Fire Protection	
			20.08.05.07-Electrical	
			20.08.05.08-Controls	
			20.08.05.09-Communications / Data Transfer	
			20.08.05.10-Lightning Protection and Grounding	
			20.08.05.11-Furnishings and Equipment	



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		20.08.06-ALMA and Contractors Camp		
			20.08.06.00-General	
			20.08.06.01-Civil	
			20.08.06.02-Structural	
			20.08.06.03-Architectural	
			20.08.06.04-Plumbing	
			20.08.06.05-Mechanical	
			20.08.06.06-Fire Protection	
			20.08.06.07-Electrical	
			20.08.06.08-Controls	
			20.08.06.09-Communications / Data Transfer	
			20.08.06.10-Lightning Protection and Grounding	
			20.08.06.11-Furnishings and Equipment	
		20.08.07-Transporter and Truck Shelters		
			20.08.07.00-General	
			20.08.07.01-Civil	
			20.08.07.02-Structural	
			20.08.07.03-Architectural	
			20.08.07.04-Plumbing	
			20.08.07.05-Mechanical	
			20.08.07.06-Fire Protection	
			20.08.07.07-Electrical	
			20.08.07.08-Controls	
			20.08.07.09-Communications / Data Transfer	
			20.08.07.10-Lightning Protection and Grounding	
			20.08.07.11-Furnishings and Equipment	
		20.08.08-Antenna Assembly Complex (Hanger)		
			20.08.08.00-General	
			20.08.08.01-Civil	
			20.08.08.02-Structural	
			20.08.08.03-Architectural	
			20.08.08.04-Plumbing	
			20.08.08.05-Mechanical	
			20.08.08.06-Fire Protection	
			20.08.08.07-Electrical	
			20.08.08.08-Controls	



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			20.08.08.09-Communications / Data Transfer	
			20.08.08.10-Lightning Protection and Grounding	
			20.08.08.11-Furnishings and Equipment	
		20.08.09-Warehouse and Workshop Complex		
			20.08.09.00-General	
			20.08.09.01-Civil	
			20.08.09.02-Structural	
			20.08.09.03-Architectural	
			20.08.09.04-Plumbing	
			20.08.09.05-Mechanical	
			20.08.09.06-Fire Protection	
			20.08.09.07-Electrical	
			20.08.09.08-Controls	
			20.08.09.09-Communications / Data Transfer	
			20.08.09.10-Lightning Protection and Grounding	
			20.08.09.11-Furnishings and Equipment	
		20.08.10-Technical Complex		
			20.08.10.00-General	
			20.08.10.01-Civil	
			20.08.10.02-Structural	
			20.08.10.03-Architectural	
			20.08.10.04-Plumbing	
			20.08.10.05-Mechanical	
			20.08.10.06-Fire Protection	
			20.08.10.07-Electrical	
			20.08.10.08-Controls	
			20.08.10.09-Communications / Data Transfer	
			20.08.10.10-Lightning Protection and Grounding	
			20.08.10.11-Furnishings and Equipment	
		20.08.11-Management and Administration Complex		
			20.08.11.00-General	
			20.08.11.01-Civil	
			20.08.11.02-Structural	



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			20.08.11.03-Architectural	
			20.08.11.04-Plumbing	
			20.08.11.05-Mechanical	
			20.08.11.06-Fire Protection	
			20.08.11.07-Electrical	
			20.08.11.08-Controls	
			20.08.11.09-Communications / Data Transfer	
			20.08.11.10-Lightning Protection and Grounding	
			20.08.11.11-Furnishings and Equipment	
		20.08.12-Gate House(s)		
			20.08.12.00-General	
			20.08.12.01-Civil	
			20.08.12.02-Structural	
			20.08.12.03-Architectural	
			20.08.12.04-Plumbing	
			20.08.12.05-Mechanical	
			20.08.12.06-Fire Protection	
			20.08.12.07-Electrical	
			20.08.12.08-Controls	
			20.08.12.09-Communications / Data Transfer	
			20.08.12.10-Lightning Protection and Grounding	
			20.08.12.11-Furnishings and Equipment	
		20.08.13-Vistor's Center		
			20.08.13.00-General	
			20.08.13.01-Civil	
			20.08.13.02-Structural	
			20.08.13.03-Architectural	
			20.08.13.04-Plumbing	
			20.08.13.05-Mechanical	
			20.08.13.06-Fire Protection	
			20.08.13.07-Electrical	
			20.08.13.08-Controls	
			20.08.13.09-Communications / Data Transfer	
			20.08.13.10-Lightning Protection and Grounding	
			20.08.13.11-Furnishings and Equipment	



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		20.08.15-Residence		
			20.08.15.00-General	
			20.08.15.01-Civil	
			20.08.15.02-Structural	
			20.08.15.03-Architectural	
			20.08.15.04-Plumbing	
			20.08.15.05-Mechanical	
			20.08.15.06-Fire Protection	
			20.08.15.07-Electrical	
			20.08.15.08-Controls	
			20.08.15.09-Communications / Data Transfer	
			20.08.15.10-Lightning Protection and Grounding	
			20.08.15.11-Furnishings and Equipment	
		20.08.20-20.08.20 Operation Support Facility - Services		
			20.08.20.00-General	
			20.08.20.00-General	
	20.09-Array Site Access Roads			
		20.09.00-General		
			20.09.00.00-General	
	20.10-SCO ALMA Building			
		20.10.00-General		
			20.10.00.00-General	
			20.10.00.01-Civil	
			20.10.00.02-Structural	
			20.10.00.03-Architectural	
			20.10.00.04-Plumbing	
			20.10.00.05-Mechanical	
			20.10.00.06-Fire Protection	
			20.10.00.07-Electrical	
			20.10.00.08-Controls	
			20.10.00.09-Communications / Data Transfer	
			20.10.00.10-Lightning Protection and Grounding	
			20.10.00.11-Furnishings and Equipment	
	20.11-Site Security System			
		20.11.00-General		
			20.11.00.00-General	



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		20.11.10-Camera System		
			20.11.10.00-General	
	20.90-Site Development Design Reviews			
		20.90.00-General		
			20.90.00.00-General	
21-ATF VLA Infrastructure				
	21.00-General			
		21.00.00-General		
			21.00.00.00-General	
	21.01-ATF Buildings & Auxiliary Structures			
		21.01.00-General		
			21.01.00.00-General	
		21.01.01-ATF Site Control Trailer		
			21.01.01.00-General	
		21.01.02-ATF Holography Tower		
			21.01.02.00-General	
		21.01.03-ATF Weather Tower		
			21.01.03.00-General	
			21.01.03.01-ATF Weather Tower - East	
			21.01.03.02-ATF Weather Tower - West	
	21.02-ATF Antenna Stations			
		21.02.00-General		
			21.02.00.00-General	
		21.02.01-ATF Vertex Prototype Antenna Foundation		
			21.02.01.00-General	
			21.02.01.01-VLA site foundation design	
			21.02.01.02-Foundation grounding	
			21.02.01.03-Foundation cathodic protection	
			21.02.01.04-Foundation design review	
			21.02.01.05-Foundation acceptance testing	
		21.02.02-ATF A/C/E Prototype Antenna Foundation		
			21.02.02.00-General	
			21.02.02.01-Foundations-General	
			21.02.02.02-Pier	



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			21.02.02.03-Cabling Conduits	
			21.02.02.04-Grounding Counter Poise	
		21.02.03-ATF Japanese Prototype Antenna Foundation		
			21.02.03.00-General	
	21.03-ATF Utilities			
		21.03.00-General		
			21.03.00.00-General	
	21.04-ATF Power			
		21.04.00-General		
			21.04.00.00-General	
		21.04.01-ATF Vertex Prototype Power Connection		
			21.04.01.00-General	
		21.04.02-ATF A/C/E Prototype Power Connection		
			21.04.02.00-General	
		21.04.03-ATF Japanese Prototype Power Connection		
			21.04.03.00-General	
	21.05-ATF Communications			
		21.05.00-General		
			21.05.00.00-General	
30-Antenna Management				
	30.00-General			
		30.00.00-General		
			30.00.00.00-General	
31-A/C/E Prototype Antenna				
	31.00-Antenna - A/C/E Prototype Antenna			
		31.00.00-General		
			31.00.00.00-General	
		31.00.10-Structure & Mechanisms		
			31.00.10.00-Structure & Mechanisms- General	
			31.00.10.10-Base Structure - General	
			31.00.10.11-Base	
			31.00.10.12-Azimuth Bearing	
			31.00.10.20-Yoke Structure - General	



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			31.00.10.21-Antenna Control Unit VME Crate	
			31.00.10.22-Yoke	
			31.00.10.23-Elevation Bearing	
			31.00.10.30-Elevation Structure - General	
			31.00.10.32-Feed shutter	
			31.00.10.33-Counter weights	
			31.00.10.40-Elevation Structure-Bus - General	
			31.00.10.41-Optical Telescope Interface	
			31.00.10.42-Apex Support Legs	
			31.00.10.43-Panels Adjusters	
			31.00.10.44-Panels	
			31.00.10.50-Elevation Structure - Apex - General	
			31.00.10.51-Subreflector	
			31.00.10.52-Subreflector Mechanisms	
			31.00.10.53-Nutator Interface	
		31.00.20-Pointing & Instrumentation		
			31.00.20.00-Pointing & Instrumentation - General	
			31.00.20.10-Direct Drive Torque Motors - General	
			31.00.20.11-Azimuth Drive	
			31.00.20.12-Elevation Drive	
			31.00.20.20-Antenna Control Unit - General	
			31.00.20.22-Portable Control Unit	
			31.00.20.30-Encoders - General	
			31.00.20.32-Elevation Encoder	
			31.00.20.40-Metrology System - General	
			31.00.20.50-Limit Switches - General	
			31.00.20.51-Azimuth Limit Switches	
			31.00.20.52-Elevation Limit Switches	
			31.00.20.60-Brakes - General	
			31.00.20.61-Azimuth Brakes	
			31.00.20.62-Elevation Brakes	
		31.00.30-Auxiliary Equipment		



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			31.00.30.00-Auxiliary Equipment - General	
			31.00.30.10-Lightning Protection System	
			31.00.30.11-External Protection	
			31.00.30.12-Internal Protection	
			31.00.30.13-Interfaces	
			31.00.30.20-Cabling and Piping - General	
			31.00.30.21-UPS	
			31.00.30.22-Smoke Detectors	
			31.00.30.23-Protection Equipment	
			31.00.30.24-Azimuth and Elevation Cable Wraps	
			31.00.30.40-Access & Handling - General	
			31.00.30.41-Handling Equipment	
			31.00.30.42-Access & Service Platform	
			31.00.30.50-HVAC System	
			31.00.30.60-Safety Devices - General	
			31.00.30.61-Stow Pins	
			31.00.30.62-Hard Stops	
			31.00.30.63-Emergency Stops Network	
	31.90-Design Reviews - A/C/E Prototype Antenna			
		31.90.00-General		
			31.90.00.00-General	
32-VertexRSI Prototype Antenna				
	32.00-General			
		32.00.00-General		
			32.00.00.00-General	
	32.01-Antenna Structure			
		32.01.00-General		
			32.01.00.00-General	
		32.01.01-Elevation sub-structure		
			32.01.01.00-General	
			32.01.01.01-Reflector panels	
			32.01.01.02-Panel adjusters	
			32.01.01.03-Back-up support	
			32.01.01.04-Counterweight	
			32.01.01.05-Receiver cabin	



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			32.01.01.06-Feed shutter	
			32.01.01.07-Optical telescope interface	
			32.01.01.08-Evaluation front-end interface	
			32.01.01.09-Equipment rack interface	
		32.01.02-Yoke sub-structure		
			32.01.02.00-General	
			32.01.02.01-Antenna yoke	
			32.01.02.02-Elevation bearing	
			32.01.02.03-Transporter interface	
		32.01.03-Base sub-structure		
			32.01.03.00-General	
			32.01.03.01-Antenna base	
			32.01.03.02-Azimuth bearing	
		32.01.04-Sub-reflector sub-structure		
			32.01.04.00-General	
			32.01.04.01-Sub-reflector support	
			32.01.04.02-Sub-reflector	
			32.01.04.03-Sub-reflector mechanism	
			32.01.04.04-Nutator interface	
			32.01.04.05-Apex calibration interface	
			32.01.04.06-Holography FE Interface	
		32.01.05-Auxiliary sub-structures		
			32.01.05.00-General	
			32.01.05.01-Hard stops	
			32.01.05.02-Stow pins	
			32.01.05.03-Access & service platform	
			32.01.05.04-FE handling equipment	
			32.01.05.05-FE antenna adapter plate	
			32.01.05.06-Cryo compressor mount	
	32.02-Antenna Metrology			
		32.02.00-General		
			32.02.00.00-General	
		32.02.01-Yoke arm displacement metrology structure		
			32.02.01.00-General	
			32.02.01.01-Yoke arm displacement CFRP reference structure	



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			32.02.01.02-Yoke arm displacement laser reference structure	
		32.02.02-Electronic level metrology mounting structure		
			32.02.02.00-General	
			32.02.02.01-Foundation mount	
			32.02.02.02-Below azimuth bearing mount	
			32.02.02.03-Above Azimuth bearing mount	
			32.02.02.04-Yoke arm mounts	
		32.02.03-Thermal sensor locations		
			32.02.03.00-General	
	32.03-Antenna Drive			
		32.03.00-General		
			32.03.00.00-General	
		32.03.01-Apex displacement sensor		
			32.03.01.00-General	
			32.03.01.01-Azimuth drive motor	
			32.03.01.02-Azimuth encoder	
			32.03.01.03-Azimuth tachometer	
			32.03.01.04-Azimuth brakes	
			32.03.01.05-Azimuth limit switches	
		32.03.02-Elevation drive sub-system		
			32.03.02.00-General	
			32.03.02.01-Azimuth limit switches	
			32.03.02.02-Elevation encoder	
			32.03.02.03-Elevation tachometer	
			32.03.02.05-Elevation limit switches	
	32.04-Antenna Control			
		32.04.00-General		
			32.04.00.00-General	
		32.04.01-Antenna control unit		
			32.04.01.00-General	
			32.04.01.01-ACU Software	
			32.04.01.02-ACU housing	
		32.04.02-Pointing computer		
			32.04.02.00-General	



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			32.04.02.01-Pointing computer software	
			32.04.02.02-Pointing computer housing	
			32.04.02.03-Pointing computer displacement sensors	
			32.04.02.04-Elevation brakes	
			32.04.02.05-Pointing computer thermal sensors	
			32.04.02.06-Pointing computer electronic levels	
	32.05-Antenna Cabling & Pipe Infrastructure			
		32.05.00-Azimuth cable wrap		
			32.05.00.00-General	
		32.05.01-Elevation cable wrap		
			32.05.01.00-General	
		32.05.03-EMC sub-systems		
			32.05.03.00-General	
			32.05.03.01-Lightning protection devices	
			32.05.03.02-Line filters	
			32.05.03.03-Surge protection devices	
		32.05.04-Cabling infrastructure		
			32.05.04.00-General	
			32.05.04.01-Power cables	
			32.05.04.02-M&C Signal cables	
			32.05.04.03-RF signal cables	
			32.05.04.04-Optical fibres	
			32.05.04.05-Cable ducts	
			32.05.04.06-Antenna junction box	
		32.05.05-He pipe infrastructure		
			32.05.05.00-General	
			32.05.05.01-Fixed He pipes	
			32.05.05.02-Flexible He lines	
		32.05.06-Oxygen enhancement		
			32.05.06.00-General	
		32.05.07-UPS sub-system		
			32.05.07.00-General	
			32.05.07.01-Batteries	



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			32.05.07.02-DC/AC converter	
	32.06-Antenna HVAC			
		32.06.00-General		
			32.06.00.00-General	
		32.06.01-Receiver cabin HVAC		
			32.06.01.00-General	
		32.06.02-Receiver cabin structure HVAC		
			32.06.02.00-General	
	32.07-Antenna Specific Test & Construction			
		32.07.00-General		
			32.07.00.00-General	
		32.07.01-Antenna contractor acceptance test		
			32.07.01.00-General	
		32.07.02-Additional ALMA antenna acceptance test		
			32.07.02.00-General	
	32.08-Tooling			
		32.08.00-General		
			32.08.00.00-General	
		32.08.01-Test Tooling		
			32.08.01.00-Dummy Racks	
			32.08.01.01-Dummy FE	
	32.90-Design Reviews - VertexRSI Prototype Antenna			
		32.90.00-General		
			32.90.00.00-General	
		32.90.01-Vertex antenna specification		
			32.90.01.00-General	
		32.90.02-Antenna Proposal		
			32.90.02.00-General	
		32.90.03-Antenna PDR		
			32.90.03.00-General	
		32.90.04-Antenna CDR		
			32.90.04.00-General	
			32.90.04.01-Antenna CDR	
			32.90.04.02-Antenna delta-CDR	
		32.90.05-Antenna CDD		
			32.90.05.00-General	



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33-AEM Production Antenna				
	33.00-General			
		33.00.00-General		
			33.00.00.00-General	
	33.10-Azimuth Structure			
		33.10.10-Azimuth Bearing		
		33.10.20-Base		
		33.10.30-Yoke Base		
		33.10.40-Insulation system		
		33.10.50-AZ cable wrap		
		33.10.60-Yoke arms		
		33.10.70-Access equipment		
	33.15-Cabin System			
		33.15.10-Feed shutter		
		33.15.20-EL cable wrap		
		33.15.30-Elevation bearing		
		33.15.40-Receiver cabin		
	33.20-Main Reflector			
		33.20.10-Backup Structure		
		33.20.20-Panels		
		33.20.30-Panel Adjusters		
		33.20.40-Optical Telescope Int.		
	33.25-APEX Equipment			
		33.25.10-Apex Structure		
		33.25.20-Subreflector		
		33.25.30-Subreflector Mechanism		
		33.25.40-Interface Cylinder		
		33.25.50-Quadripod Legs		
	33.30-HVAC System			
		33.30.10-HVAC		
	33.35-Antenna Mechanisms			
		33.35.10-Azimuth Drive		
		33.35.20-Elevation Drive		
		33.35.30-Antenna Control System		
		33.35.40-Elevation Endcoder		
		33.35.50-Azimuth Endcoder		
		33.35.60-Elevation Brakes		
		33.35.70-Azimuth Brakes		



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	33.40-Safety Equipments			
		33.40.10-Hard Stops		
		33.40.20-Stow Pins		
		33.40.30-Smoke Detectors		
		33.40.40-Grounding & Lightning Prot.		
		33.40.50-Stop Switches Interlock		
	33.45-Metrology			
		33.45.10-Thermal Metrology Equipment		
		33.45.20-Dynamic Metrology Equipment		
	33.50-Electrical Installations			
		33.50.10-UPS		
		33.50.20-Power Distribution		
		33.50.30-Cabling		
		33.50.40-Piping		
		33.50.50-Power Monitoring System		
	33.55-ALMA Equipment Installation			
		33.55.10 Cryo Compress. Install.		
	33.60-Service, Test, Assembly Tools			
		33.60.10-Toolings & Test Equipments		
		33.60.20-Service Equipment		
			33.60.20.10-Drive System Service Bench	
				33.60.20.10.00-DSSB General
				33.60.20.10.10-DSSB Electronics
				33.60.20.10.20-DSSB Mechanics
				33.60.20.10.30-DSSB Software/Firmware
		33.60.30-OSF Equipment		
		33.60.40-JIGS		
34-Production Antenna				
	34.00-General			
		34.00.00-General		
			34.00.00.00-General	
35-Vertex Production Antenna				
	35.00-General			
		35.00.00-General		
		35.00.90-Nutator Design Reviews		
			35.00.90.00-General	



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	35.01-Nutator Demonstrator			
		35.01.00-General		
			35.01.00.00-General	
		35.01.01-Mechanics		
			35.01.01.00-General	
		35.01.02-Electronics		
			35.01.02.00-General	
		35.01.03-Controls		
			35.01.03.00-General	
	35.02-Prototype Nutator			
		35.02.00-General		
			35.02.00.00-General	
		35.02.01-Opt-mechanical structure		
			35.02.01.00-General	
			35.02.01.01-Optics	
		35.02.02-Electronics		
			35.02.02.00-General	
			35.02.02.02-Mechanics	
		35.02.03-Controls		
			35.02.03.00-General	
	35.03-Production Nutator			
		35.03.00-General		
			35.03.00.00-General	
		35.03.01-Opt-mechanical structure		
			35.03.01.00-General	
			35.03.01.01-Optics	
		35.03.02-Electronics		
			35.03.02.00-General	
			35.03.02.02-Mechanics	
		35.03.03-Controls		
			35.03.03.00-General	
	35.10-General			
	35.20-Mechanical Structure			
	35.21-Pedestal Structure			
	35.22-Elevation Structure			
	35.23-Platform Structure			
	35.30-Servo System			
	35.31-Antenna Control Unit			
		35.31.00-General		
		35.31.10-General		



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			35.31.10.00-General	
	35.32-Portable Control Unit			
	35.33-Metrology			
	35.34-Switches and Sensors			
	35.35-Software			
		35.35.10-General		
			35.35.10.00-General	
		35.35.20-Design Documents		
			35.35.20.00-General	
		35.35.30-Interface Control Documents		
			35.35.30.00-General	
			35.35.30.10-Vertex Antenna ACU to ABM Computer	
		35.35.40-Test Documents		
			35.35.40.10-General	
			35.35.40.20-Antenna Inspection Point Chile (AIPC)	
	35.50-Auxiliary Equipment			
		35.50.10-General		
			35.50.10.00-General	
36-General				
	36.00-General			
		36.00.00-General		
			36.00.00.00-General	
	36.01-Optical Pointing Telescope			
		36.01.00-General		
			36.01.00.00-General	
		36.01.01-Opto-Mechanical Structure		
			36.01.01.00-General	
		36.01.02-Electronics		
			36.01.02.00-General	
		36.01.03-Controls		
			36.01.03.00-General	
	36.02-Optical Pointing Telescope for 7m Array			
		36.02.00-General		
			36.02.00.00-General	
		36.02.01-Opto-Mechanical Structure		
			36.02.01.00-General	
		36.02.02-Electronics		
			36.02.02.00-General	



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			36.02.03.00-General	
	36.10-Prototype Nutator			
	36.20-Production Nutator			
37-Antenna Transporter				
	37.00-General			
		37.00.00-General		
			37.00.00.00-General	
	37.01-General Requirements			
		37.01.00-General		
			37.01.00.00-General	
	37.02-Contract Follow-up			
		37.02.00-General		
			37.02.00.00-General	
	37.03-Scheuerle			
		37.03.00-General		
			37.03.00.00-General	
	37.04-Structure			
		37.04.00-General		
			37.04.00.00-General	
	37.05-Drive System			
		37.05.00-General		
			37.05.00.00-General	
	37.06-Loading System			
		37.06.00-General		
			37.06.00.00-General	
	37.07-Control System			
		37.07.00-General		
			37.07.00.00-General	
	37.08-Auxiliary Equipment			
		37.08.00-General		
			37.08.00.00-General	
	37.90-Antenna Transporter design reviews			
		37.90.00-General		
			37.90.00.00-General	
38-ACA 12m Antenna				
	38.00-General			
		38.00.00-General		
			38.00.00.00-General	
	38.01-Mitsubishi 12m Antenna			



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			38.01.00.00-General	
		38.01.01-REF-ASSY		
			38.01.01.05-Rib-Assy	
				38.01.01.05-010-RIB-A-STAY
				38.01.01.05-020-RIB-B-STAY
				38.01.01.05-030-RIB-A
				38.01.01.05-040-RIB-C
				38.01.01.05-050-RIB-B-STAY
			38.01.01.10-Center-Hub	
			38.01.01.15-Back Panel	
				38.01.01.15-010-BACK-PANEL-1
				38.01.01.15-020-BACK-PANEL-2
				38.01.01.15-021-BACK-PANEL-2A
				38.01.01.15-022-BACK-PANEL-2B
				38.01.01.15-030-BACK-PANEL-3
				38.01.01.15-031-BACK-PANEL-3A
				38.01.01.15-032-BACK-PANEL-3B
				38.01.01.15-033-BACK-PANEL-3C
				38.01.01.15-040-BACK-PANEL-4
				38.01.01.15-041-BACK-PANEL-4A
				38.01.01.15-042-BACK-PANEL-4B
			38.01.01.20-Main-Panel-Assy	
				38.01.01.20-010-T1-ASSY
				38.01.01.20-020-T2-ASSY
				38.01.01.20-021-T2A-ASSY
				38.01.01.20-022-T2B-ASSY
				38.01.01.20-030-T3-ASSY
				38.01.01.20-040-T4-ASSY
				38.01.01.20-041-T4A-ASSY
				38.01.01.20-042-T4B-ASSY
				38.01.01.20-043-T4C-ASSY
				38.01.01.20-050-T5-ASSY
				38.01.01.20-051-T5A-ASSY
				38.01.01.20-060-T6-ASSY
				38.01.01.20-061-T6A-ASSY
				38.01.01.20-062-T6B-ASSY
				38.01.01.20-070-T7-ASSY
			38.01.01.25-Subref-Assy	
				38.01.01.25-010-SUBREF



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				38.01.01.25-020-TOP-RING
				38.01.01.25-030-SUBREF-DRIVE
			38.01.01.30-Stay-Assy	
				38.01.01.30-010-STAY
			38.01.01.35-OPT-TLS	
			38.01.01.40-Shade	
				38.01.01.40-010-SHADE-1
				38.01.01.40-011-SHADE-1-OPT
				38.01.01.40-012-SHADE-1-HATCH
				38.01.01.40-013-SHADE-1-CBL
				38.01.01.40-014-SHADE-1-DUCT-L
				38.01.01.40-015-SHADE-1-DUCT-R
				38.01.01.40-020-SHADE-T
				38.01.01.40-021-SHADE-CBL-T
				38.01.01.40-022-SHADE-HOLE-T
		38.01.02-EL-STR-Assy		
			38.01.02.05-Spring-Plate	
			38.01.02.10-Cabin	
			38.01.02.15-RCV-Support	
			38.01.02.20-Shutter	
			38.01.02.25-EL-Shaft-Assy	
			38.01.02.30-Counter-Weight	
		38.01.03-AZ-STR-Assy		
			38.01.03.05-Yoke	
			38.01.03.10-Base	
		38.01.04-EL-Drive-Mech		
			38.01.04.05-EL-Drive	
			38.01.04.10-EL-ANG-Encoder	
			38.01.04.15-EL-VEL-Encoder	
			38.01.04.20-EL-Brake	
			38.01.04.25-EL-Limit	
			38.01.04.30-EL-Stow-Limit	
			38.01.04.35-EL-Stock-Lock	
			38.01.04.40-EL- Cable-Wrap	
		38.01.05-AZ-Drive-Mech		
			38.01.05.05-AZ-Drive	
			38.01.05.10-AZ-ANG-Encoder	
			38.01.05.15-AZ-VEL-Encoder	



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			38.01.05.25-AZ-Limit	
			38.01.05.30-AZ-Stow-Lock	
			38.01.05.35-AZ-Cable-Wrap	
			38.01.05.40-AZ-Mech-Stop	
		38.01.06-Metrology-Mech		
			38.01.06.05-Ref-Thermo	
			38.01.06.10-Mount-Thermo	
			38.01.06.15-Metrology-Ref	
				38.01.06.15-010-LENGTH-GAUGE
			38.01.06.20-Metrology-Yoke	
				38.01.06.20-010-LENGTH-GAUGE
			38.01.06.25-Metrology-Base	
				38.01.06.25-010-GAP-SENSOR
		38.01.07-Facility		
			38.01.07.05-Veranda	
				38.01.07.05-010-VERANDA-2F
				38.01.07.05-020-VERANDA-1F
				38.01.07.05-030-VERANDA-1.5F
				38.01.07.05-040-CONT-CABIN
				38.01.07.05-050-STAIRWAY
				38.01.07.05-060-RACK-TRANS
				38.01.07.05-070-RACK-EXCHANGER
			38.01.07.07-Cryo-Equipment	
				38.01.07.07-010-INDOOR-UNIT
				38.01.07.07-011-ICCU-ENCLOSURE
				38.01.07.07-020-OUTDOOR-UNIT
				38.01.07.07-021-OCU-ENCLOSURE
				38.01.07.07-030-HELIUM PIPES
				38.01.07.07-040-SUPPLY PRESSURE TRANSDUCER
				38.01.07.07-050-RETURN PRESSURE TRANSDUCER
				38.01.07.07-060-ENCLOSURE TEMP SENSORS
			38.01.07.10-Aircon	
				38.01.07.10-010-AIRCON-R/C
				38.01.07.10-020-AIRCON-C/C
				38.01.07.10-030-AIRCON-DD



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				38.01.07.10-050-CONT-BOX2
				38.01.07.10-060-CONT-BOX3
			38.01.07.15-Lightning	
				38.01.07.15-010-LIGHTNING-BRUSH
				38.01.07.15-020-LIGHTNING-CABIN
			38.01.07.20-Safety Equipment	
				38.01.07.20-010-SAFETY-SW
				38.01.07.20-020-FIRE-ALARM
			38.01.07.25-Fan-Assy	
				38.01.07.25-010-REF-FAN
				38.01.07.25-020-YOKE-FAN
			38.01.07.30-Cont-Rack	
			38.01.07.35-UPS-Rack	
			38.01.07.40-Insulator-Assy	
		38.01.11-Antenna Cont Rack		
			38.01.11.05-ACU	
				38.01.11.05-005-VME PANEL
				38.01.11.05-010-CPU BOARD
				38.01.11.05-020-DSP BOARD
				38.01.11.05-030-INTERLOCK BOARD
				38.01.11.05-050-ENCODER PULSE I/O BOARD
				38.01.11.05-060-CAN BOARD
				38.01.11.05-070-TTL I/O BOARD
				38.01.11.05-080-SERIAL I/O BOARD
				38.01.11.05-100-CLOCK IF BOARD
				38.01.11.05-110-RAS BOARD
				38.01.11.05-120-DISPLAY IF BOARD
				38.01.11.05-130-DISPLAY BOARD
			38.01.11.10-Antenna Control Unit IF Panel	
			38.01.11.15-R/D Converter	
			38.01.11.20-Stow DPA	
		38.01.12-DCPA Rack		
			38.01.12.05-Transformer	
			38.01.12.10-IF Unit	
			38.01.12.15-Filter (AZ-I)	
			38.01.12.20-Filter (EL-I)	



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			38.01.12.30-C-Bank (AZ/EL)	
			38.01.12.35-C-Bank (AZ)	
			38.01.12.40-Filter (AZ-O)	
			38.01.12.45-Filter (EL-O)	
		38.01.13-Subref Rack		
			38.01.13.05-Subref IF Panel	
			38.01.13.10-Subref Operation Board	
			38.01.13.15-Subref Control	
				38.01.13.15-010-CPU MODULE
				38.01.13.15-020-DIGITAL INPUT
				38.01.13.15-030-DIGITAL I/O A
				38.01.13.15-040-DIGITAL I/O B
				38.01.13.15-050-ANALOG BOARD
				38.01.13.15-060-MOTION CONTROL BOARD
				38.01.13.15-070-SERIAL BOARD
			38.01.13.20-Subref DPA	
			38.01.13.25-Shutter DPA	
			38.01.13.30-Metrology I/F Panel (4)	
		38.01.14-Nutator Rack		
			38.01.14.05-AZ-Brake DPA	
			38.01.14.10-EL-Brake DPA	
			38.01.14.15-Metrology I/F Panel (10)	
			38.01.14.20-Filter Brake	
			38.01.14.30-Utility Module	
		38.01.15-Metrology Rack		
			38.01.15.05-GAP Sensor AMP	
			38.01.15.10-Metrology I/F Panel B	
			38.01.15.15-Serial Converter	
		38.01.16-PCU		
		38.01.21-Power Distrib. Board		
			38.01.21.05-Base PDB	
			38.01.21.10-Yoke PDB	
			38.01.21.15-Cabin PDB	
		38.01.22-Electrical Equipment		
			38.01.22.05-Lighting Fixture	
			38.01.22.10-Outlet	



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			38.01.22.15 Inlet	
			38.01.22.20-Cable Routing	
		38.01.31-UPS		
			38.01.31.05-UPS1	
			38.01.31.10-UPS2	
	38.02-Refurbished Mitsubishi prototype ACA 12m Antenna			
		38.02.00-General		
			38.02.00.00-General	
	38.90-ACA 12 m Antenna Design Reviews			
		38.90.00-General		
39-ACA 7m Antenna				
	39.00-General			
		39.00.00-General		
	39.01-ALMA 7m Antenna			
			39.00.00.00-General	
		39.01.01-REF-ASSY		
			39.01.01.10-Main-Panel	
				39.01.01.10-010-T1-Assy
				39.01.01.10-020-T2-Assy
				39.01.01.10-030-T3-Assy
				39.01.01.10-031-T3A-Assy
				39.01.01.10-032-T3B-Assy
				39.01.01.10-040-T4-Assy
				39.01.01.10-041-T4A-Assy
				39.01.01.10-042-T4B-Assy
				39.01.01.10-043-T4C-Assy
				39.01.01.10-050-T5-Assy
			39.01.01.30-INSULATOR-REF	
			39.01.01.31-REF-STR	
			39.01.01.33-RIB-ASSY	
				39.01.01.33-010-Mainrib
				39.01.01.33-020-Mainrib-OPT (R)
				39.01.01.33-030- Mainrib-OPT (L)
				39.01.01.33-040-Mainrib-Stay
			39.01.01.34-CENTER-HUB	
			39.01.01.35-OPT-TLS	
			39.01.01.50-STAY-ASSY	
				39.01.01.50-010-Stay
				39.01.01.50-020-Top-Ring



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			39.01.01.60-SUBREF-ASSY	
				39.01.01.60-010-Sub-Reflector
				39.01.01.60-020-Subref-Drive
			39.01.01.70-FAN-REF	
				39.01.01.70-010-Fan
				39.01.01.70-020-Turbo-Fan
				39.01.01.70-030-Thermal-Box-Ref
			39.01.01.80-Shade	
				39.01.01.80-011- Shade-A1
				39.01.01.80-012- Shade-A2
				39.01.01.80-013- Shade-A3
				39.01.01.80-014- Shade-A4
				39.01.01.80-015- Shade-A5
				39.01.01.80-016- Shade-A6
				39.01.01.80-021- Shade-B1
				39.01.01.80-022- Shade-B2
				39.01.01.80-023- Shade-B3
				39.01.01.80-031- Shade-C1
				39.01.01.80-032- Shade-C2
				39.01.01.80-033- Shade-C3
				39.01.01.80-041- OPT-SHADE1
				39.01.01.80-042- OPT- Shade2
				39.01.01.80-050- FAN-COVER
				39.01.01.80-061- Shade-REF1
				39.01.01.80-062- Shade-REF2
				39.01.01.80-071- Shade-INR1
				39.01.01.80-072- Shade-INR2
			39.01.01.90-LIGHTNING-REF	
		39.01.02-EL-STR		
			39.01.02.20-RCV-SPT-ASSY	
			39.01.02.22-SHUTTER-ASSY	
			39.01.02.23-UP-GASKET	
			39.01.02.25-SPRING-PLATE	
			39.01.02.30-LIGHTNING-EL-STR	
			39.01.02.35-METROLOGY-EL-STR	
			39.01.02.40-DOOR-CABIN	
			39.01.02.50-YOKE-FAN	
			39.01.02.55-FAN-EL-STR	
			39.01.02.60-INSULATOR-CABIN	



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			39.01.02.65-RACK-CABIN	
			39.01.02.70-SHADE-EL-STR	
			39.01.02.75-INSULATOR-YOKE	
			39.01.02.83-DUCT-CABIN	
			39.01.02.84-AIRCON-R/C	
			39.01.02.85-COUNTER-WEIGHT	
			39.01.02.91-EL-SHAFT	
			39.01.02.94-INS-EL-STR	
			39.01.02.95-CABIN	
		39.01.03-AZ-STR		
			39.01.03.20-LIGHTNING-AZ	
			39.01.03.30-METROLOGY-MOUNT	
			39.01.03.35-CLINOMETER	
			39.01.03.40-INSULATOR-Y/B	
			39.01.03.51-DOOR-YOKE	
			39.01.03.52-RACK-FAN	
				39.01.03.52-050-Rack-Fan
				39.01.03.52-051-DCPA-Fan
			39.01.03.53-RACK-YOKE	
			39.01.03.54-YOKE-BASE	
			39.01.03.60-DOOR-BASE	
			39.01.03.70-BASE-FAN	
				39.01.03.70-010-Thermal Box B
			39.01.03.75-RACK-BASE	
			39.01.03.80-INSULATOR-BASE	
			39.01.03.91-BASE	
		39.01.04-EL-DRIVE-MECH		
			39.01.04.10-EL-DRIVE	
			39.01.04.20-EL-ANG-ENCODER	
			39.01.04.30-EL-VEL-ENCODER	
			39.01.04.40-EL-BRAKE	
			39.01.04.50-EL-LIMIT	
			39.01.04.60-EL-STOW-LIMIT	
			39.01.04.70-EL-STOW-LOCK	
			39.01.04.80-EL-CABLE-WRAP	
		39.01.05-AZ-DRIVE-MECH		
			39.01.05.10-AZ-DRIVE	



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			39.01.05.20-AZ-ANG-ENCODER	
			39.01.05.30-AZ-VEL-ENCODER	
			39.01.05.40-AZ-BRAKE	
			39.01.05.50-AZ-LIMIT	
			39.01.05.60-AZ-STOW-LOCK	
			39.01.05.70-AZ-CABLE-WRAP	
			39.01.05.80-AZ-MECH-STOP	
		39.01.07-FACILITY		
			39.01.07.10-CRYO-EQUIPMENT	
				39.01.07.10-010-INDOOR-UNIT
				39.01.07.10-011 ICCU-ENCLOSURE
				39.01.07.10-020-OUTDOOR-UNIT
				39.01.07.10-021-OCU-ENCLOSURE
				39.01.07.10-030- HELIUM PIPES
				39.01.07.10-040- SUPPLY PRESSURE TRANSDUCER
				39.01.07.10-050- RETURN PRESSURE TRANSDUCER
				39.01.07.10-060- ENCLOSURE TEMP SENSORS
			39.01.07.20-SAFETY EQUIPMENT	
				39.01.07.20-010-Safety-SW
				39.01.07.20-020-Fire-Alarm
			39.01.07.30-AIRCON-R/C-WAT	
		39.01.11-ANT CONT RACK		
			39.01.11.05-ACU	
				38.01.11.05-005-VME PANEL
				39.01.11.05-010-CPU BOARD
				38.01.11.05-020-DSP BOARD
				38.01.11.05-030-INTERLOCK BOARD
				38.01.11.05-050 ENC PULSE I/O BOARD
				38.01.11.05-060-CAN BOARD
				38.01.11.05-070-TTL I/O BOARD
				38.01.11.05-080-SERIAL I/O BOARD
				38.01.11.05-100-CLOCK IF BOARD
				38.01.11.05-110-RAS BOARD
				38.01.11.05-120-DISPLAY IF BOARD
				38.01.11.05-130-DISPLAY BOARD



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			38.01.11.15-R/D CONVERTER	
		39.01.12-DCPA RACK		
			38.01.12.05- TRANSFORMER	
			38.01.12.10-IF UNIT	
			38.01.12.15-FILTER (AZ-I)	
			38.01.12.20-FILTER (EL-I)	
			38.01.12.25-DPA UNIT	
			38.01.12.30-C- BANK(AZ/EL)	
			38.01.12.40- FILTER(AZ-O)	
			38.01.12.45-FILTER(EL- O)	
		39.01.13-SUBREF RACK		
			38.01.13.15-SUBREF CONTROL	
				38.01.13.15-010 CPU- MODULE
				38.01.13.15-020-DIGITAL INPUT
				38.01.13.15-030-DIGITAL I/O A
				38.01.13.15-040-DIGITAL I/O B
				38.01.13.15-050-ANALOG BOARD
				38.01.13.15-060-MOTION CONTROL BOARD
				38.01.13.15-070-SERIAL BOARD
			39.01.13.20-SUBREF DPA	
			38.01.13.25-SHUTTER DPA	
			39.01.15.25-DATA LOGGER	
				39.01.15.25-010-Multiplexer
			38.01.15.15-SERIAL CONVERTER	
		39.01.14-NUTATOR RACK		
			38.01.14.30-UTILITY MODULE	
			39.01.14.35-UPS- UTILITY	
		39.01.15-METROLOGY BOX BASE		
			39.01.15.20-METR I/F PANEL (3)	
			39.01.15.25-DATA LOGGER	
				39.01.15.25-010- MULTIPLEXER
			38.01.15.15-Serial Converter	
		38.01.16-PCU		
		39.01.17-METROLOGY BOX YOKE		
			39.01.17.05-METR I/F PANEL (8)	



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			39.01.15.25-DATA LOGGER	
				39.01.15.25-010- MULTIPLEXER
		39.01.18-AIRCON		
				38.01.07.10-040-CONT-BOX1
			39.01.18.20-CONT- BOX2	
			39.01.18.30-CONT- BOX3	
		39.01.19-ANT CONT RACK 2		
			39.01.19.05-ACR2 IF PANEL	
			38.01.14.05-AZ-BRAKE DPA	
			38.01.14.10-EL-BRAKE DPA	
			38.01.14.20-FILTER- BRAKE	
			38.01.11.20-STOW DPA	
		39.01.21-POWER DISTRIBUTION BOARD		
			39.01.21.05-BASE PDB	
			39.01.21.10-YOKE PDB	
			39.01.21.15-CABIN PDB	
		39.01.22-ELECTRICAL EQUIPMENT		
			39.01.22.05-LIGHTING FIXTURE	
			39.01.22.10-OUTLET	
			39.01.22.15-INLET	
			39.01.22.20-CABLE ROUTING	
		39.01.31-UPS		
			39.01.31.05-UPS1	
			39.01.31.10-UPS2	
	39.90-ACA 7m Antenna Design Review			
		39.90.00-General		
			39.90.00.00-General	
40-Front End				
	40.00-General			
		40.00.00-General		
			40.00.00.00-General	
	40.01-Common optics			
		40.01.00-General		
			40.01.00.00-General	
		40.01.02-Band 2 common optics		
			40.01.02.00-General	
		40.01.03-Band 3 common optics		
			40.01.03.00-General	



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		40.01.04-Band 4 common optics		
			40.01.04.00-General	
	40.02-Cartridges			
		40.02.00-General		
			40.02.00.00-General	
		40.02.01-Frequency band 1 cartridge		
			40.02.01.00-General	
			40.02.01.01-Band 1 Cold optics	
			40.02.01.02-Band 1 Unused	
			40.02.01.03-Band 1 Orthomode transducer	
			40.02.01.04-Unused	
			40.02.01.05-Band 1 RF cold amplifiers	
			40.02.01.06-Band 1 Protection board	
			40.02.01.07-Band 1 support structure	
			40.02.01.08-Band 1 Cartridge wiring	
			40.02.01.09-Band 1 Cartridge electrical feedthroughs	
			40.02.01.10-Unused	
			40.02.01.11-Band 1 Thermal sensors	
		40.02.02-Frequency band 2 cartridge		
			40.02.02.00-General	
			40.02.02.07-Band 2 support structure	
		40.02.03-Frequency band 3 cartridge		
			40.02.03.00-General	
			40.02.03.01-Band 3 cold optics	
			40.02.03.02-Band 3 LO injection	
			40.02.03.03-Band 3 ortho mode transducer	
			40.02.03.04-Band 3 SIS mixer/integrated IF amplifier	
			40.02.03.05-CANCELLED (was Band 3 IF amplifiers)	
			40.02.03.06-Band 3 protection board	
			40.02.03.07-Band 3 support structure	
			40.02.03.08-Band 3 cartridge wiring	
			40.02.03.09-Band 3 cartridge electrical feedthroughs	
			40.02.03.10-Cancelled	



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			40.02.03.11-Band 3 temperature sensors	
			40.02.03.12-CANCELLED (was Band 3 bias electronics)	
			40.02.03.13-Band 3 Warm IF amplifier	
		40.02.04-Frequency band 4 cartridge		
			40.02.04.00-General	
			40.02.04.01-Band 4 cold optics	
			40.02.04.02-Band 4 LO injection	
			40.02.04.03-Band 4 ortho mode transducer	
			40.02.04.04-Band 4 SIS mixer/quadrature hybrid	
			40.02.04.05-Band 4 IF cold amplifiers	
			40.02.04.06-Band 4 protection board	
			40.02.04.07-Band 4 mechanical structure	
			40.02.04.08-Band 4 cartridge wiring	
			40.02.04.09-Band 4 cartridge electrical feedthroughs	
			40.02.04.10-Band 4 cryo frequency multiplier	
			40.02.04.11-Band 4 temperature sensors	
			40.02.04.12-unused	
			40.02.04.13-Band 4 Warm IF amplifier	
		40.02.05-Frequency band 5 cartridge		
			40.02.05.00-General	
			40.02.05.01-Band 5 Cold optics	
			40.02.05.02-Band 5 LO injection	
			40.02.05.03-Band 5 ortho mode transducer	
			40.02.05.04-Band 5 SIS mixer/quadrature hybrid	
			40.02.05.05-Band 5 IF cold amplifiers	
			40.02.05.06-Band 5 protection board	
			40.02.05.07-Band 5 support structure	
			40.02.05.08-Band 5 cartridge wiring	



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			40.02.05.09-Band 5 cartridge electrical feedthroughs	
			40.02.05.10-Band 5 cryo frequency multiplier	
			40.02.05.11-Band 5 temperature sensors	
			40.02.05.13-Band 5 Warm IF amplifier	
		40.02.06-Frequency band 6 cartridge		
			40.02.06.00-General	
			40.02.06.01-Band 6 cold optics	
			40.02.06.02-Band 6 LO injection	
			40.02.06.03-Band 6 ortho mode transducer	
			40.02.06.04-Band 6 SIS mixer/integrated IF amplifier	
			40.02.06.05-Band 6 quadrature hybrids	
			40.02.06.06-CANCELLED (was Band 6 IF amplifiers)	
			40.02.06.07-Band 6 protection board	
			40.02.06.08-Band 6 support structure	
			40.02.06.09-Band 6 cartridge wiring	
			40.02.06.10-Band 6 cartridge electrical feedthroughs	
			40.02.06.11-Band 6 cryo frequency multiplier	
			40.02.06.12-Band 6 temperature sensors	
			40.02.06.13-Band 6 Warm IF amplifier	
			40.02.06.14-CANCELLED (was Band 6 first local oscillator assembly)	
		40.02.07-Frequency band 7 cartridge		
			40.02.07.00-General	
			40.02.07.01-Band 7 cold optics	
			40.02.07.02-Band 7 LO injection	
			40.02.07.03-Band 7 SIS mixers	
			40.02.07.04-Band 7 quadrature hybrids	
			40.02.07.05-Band 7 IF cold amplifiers	
			40.02.07.06-Band 7 protection board	
			40.02.07.07-Band 7 support structure	



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			40.02.07.08-Band 7 cartridge wiring	
			40.02.07.09-Band 7 cartridge electrical feedthroughs	
			40.02.07.10-Band 7 cryo frequency multiplier	
			40.02.07.11-Band 7 temperature sensors	
			40.02.07.12-CANCELLED (was Band 7 bias electronics)	
			40.02.07.13-Band 7 Warm IF amplifier	
		40.02.08-Frequency band 8 cartridge		
			40.02.08.00-General	
			40.02.08.01-Band 8 cold optics	
			40.02.08.02-Band 8 LO injection	
			40.02.08.03-Band 8 SIS mixers	
			40.02.08.04-Band 8 quadrature hybrids	
			40.02.08.05-Band 8 cryogenic IF amplifiers	
			40.02.08.06-Band 8 Warm IF amplifier	
			40.02.08.07-Band 8 mechanical structure	
			40.02.08.08-Band 8 cartridge wiring	
			40.02.08.09-Band 8 cartridge electrical feedthroughs	
			40.02.08.10-Band 8 cryo frequency multiplier	
			40.02.08.11-Band 8 sensors and heaters	
			40.02.08.12-Band 8 baseband LO transmission	
			40.02.08.13-Band 8 protection board	
			40.02.08.14-Band 8 cartridge container	
		40.02.09-Frequency band 9 cartridge		
			40.02.09.00-General	
			40.02.09.01-Band 9 cold optics	
			40.02.09.02-Band 9 LO injection	
			40.02.09.03-Band 9 SIS mixers	
			40.02.09.04-Band 9 IF amplifiers	
			40.02.09.05-Band 9 protection board	
			40.02.09.06-Band 9 support structure	



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			40.02.09.07-Band 9 cartridge wiring	
			40.02.09.08-Band 9 cartridge electrical feedthroughs	
			40.02.09.09-Band 9 cryo frequency multiplier	
			40.02.09.10-Band 9 temperature sensors	
			40.02.09.11-CANCELLED (was Band 9 bias electronics)	
			40.02.09.12-CANCELLED (was Band 9 first local oscillator assembly)	
			40.02.09.13-Band 9 Warm IF amplifier	
		40.02.10-Frequency band 10 cartridge		
			40.02.10.00-General	
			40.02.10.01-Band 10 cold optics	
			40.02.10.02-Band 10 LO injection	
			40.02.10.03-Band 10 SIS Mixers	
			40.02.10.04-Band 10 IF Cold amplifiers	
			40.02.10.05-Band 10 protection board	
			40.02.10.06-Band 10 support structure	
			40.02.10.07-Band 10 cartridge wiring	
			40.02.10.08-Band 10 cartridge electrical feedthroughs	
			40.02.10.09-Band 10 cryo frequency multiplier	
			40.02.10.10-Band 10 temperature sensors	
			40.02.10.13-Band 10 Warm IF amplifier	
	40.03-Cryostat			
		40.03.00-General		
			40.03.00.00-General	
		40.03.01-Dewar		
			40.03.01.00-General	
			40.03.01.01-Outer vacuum container	
			40.03.01.02-Radiation shields	
			40.03.01.03-Mounting plates	
			40.03.01.04-Windows & IR filters	
			40.03.01.05-Evacuation valve	
		40.03.02-Cryocooler		



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			40.03.02.00-General	
			40.03.02.01-Cold head	
			40.03.02.02-Cryo compressor	
			40.03.02.03-Indoor control unit	
			40.03.02.04-Buffer tank	
			40.03.02.05-He Pressure gauge	
			40.03.02.06-Helium lines	
			40.03.02.07-ICCU Enclosure	
			40.03.02.08-ICCU Enclosure Control Unit	
			40.03.02.09-OCU Enclosure	
			40.03.02.10-He line and Enclosure mounting parts – Vertex antenna	
			40.03.02.11-He line and Enclosure mounting parts – AEM antenna	
		40.03.03-Vacuum unit		
			40.03.03.00-General	
			40.03.03.01-Backing pump	
			40.03.03.02-Turbo pump and controller	
			40.03.03.03-Vacuum gauges and controller	
			40.03.03.04-Gate Valve and controller	
			40.03.03.05-Fail safe valve - Hardware Interlock	
			40.03.03.06-Bypass Valve	
			40.03.03.07-24 VDC Power Supply	
		40.03.04-Cryostat instrumentation		
			40.03.04.00-General	
			40.03.04.01-Electrical feed-throughs	
			40.03.04.02-Dewar wiring	
			40.03.04.03-Cryostat temperature sensors	
			40.03.04.04-Cancelled	
	40.04-Front end auxiliary modules			
		40.04.00-General		
			40.04.00.00-General	
		40.04.01-Front end power supply unit		
			40.04.01.00-General	
			40.04.01.01-A2903 Auxiliary Board Assembly	



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			40.04.01.02-A2901 Control board Assembly	
			40.04.01.03-A2902A -7V Channel Board Assembly	
			40.04.01.04-A2902B - 16V Channel Board Assembly	
			40.04.01.05-A2902C +5V Channel Board Assembly	
			40.04.01.06-A2902D +6V Channel Board Assembly	
			40.04.01.07-A2902E +7V Channel Board Assembly	
			40.04.01.08-A2902F +9V Channel Board Assembly	
			40.04.01.09-A2902G +16V Channel Board Assembly	
			40.04.01.10-A2902H +25V Channel Board Assembly	
		40.04.02-Cartridge Bias Module		
			40.04.02.00-General	
			40.04.02.01-Cartridge Bias Board Assembly	
			40.04.02.02-Wiring Adapter Board Assembly	
			40.04.02.03-Cancelled	
			40.04.02.04-Cancelled	
			40.04.02.05-Cancelled	
			40.04.02.06-Cancelled	
		40.04.03-Front end M&C unit		
			40.04.03.00-General	
			40.04.03.01-Front End Serial Bus Multiplexer Board	
			40.04.03.02-Front End Embedded Processor	
			40.04.03.03-Front End embedded software	
			40.04.03.04-FE M&C Backplane	
		40.04.04-LO M&C Module		
			40.04.04.00-General	
			40.04.04.01-LO M&C Board Assembly	
		40.04.05-Compressor M&C Module		
			40.04.05.00-General	
			40.04.05.01-Compressor M&C Board Assembly	
		40.04.06-Cryostat M&C Module		
			40.04.06.00-General	



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			40.04.06.01-Cryostat M&C Board Assembly	
		40.04.07-Power distribution M&C module		
			40.04.07.00-General	
			40.04.07.01-CPDS M&C Module - Board Assembly	
			40.04.07.02-CPDS M&C Module	
		40.04.08-Power distribution module		
			40.04.08.00-General	
			40.04.08.01-CPDS Regulator Module	
			40.04.08.02-CPDS Regulator Module - Board Assembly	
			40.04.08.03-CPDS Backplane - Board Assembly	
		40.04.09-Front End Software and Firmware		
			40.04.09.00-General	
		40.04.10-FLOOG distributor		
			40.04.10.01-FLOOG Backplane	
		40.04.11-FETIM - Front End Thermal Interlock Module		
			40.04.11.00-FETIM General	
			40.04.11.01-FETIM Backplane	
			40.04.11.02-FETIM Main Board	
			40.04.11.03-FETIM Temperature Sensors	
			40.04.11.04-FETIM Cabling	
			40.04.11.05-FETIM Airflow Sensors	
			40.04.11.06-FETIM Firmware	
			40.04.11.07-FETIM Engineering Software	
		40.04.12-Power Supply M&C		
			40.04.12.00-General	
			40.04.12.01-Power Supply M&C Cabling	
			40.04.12.02-Power Supply M&C Firmware	
	40.05-Front end chassis			
		40.05.00-General		
			40.05.00.00-General	
		40.05.01-Front end mechanical structure		
			40.05.01.00-General	



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			40.05.01.01-Front end frame	
			40.05.01.02-Front end support structure	
			40.05.01.03-Auxiliary Electronics Chassis	
			40.05.01.04-CPDS Subrack	
			40.05.01.05-IF Switch System Subrack	
			40.05.01.06-FEMC Subrack	
			40.05.01.07-Cryostat M&C Subrack	
		40.05.02-Front end cabling		
			40.05.02.00-General	
			40.05.02.01-IF Coaxial cabling	
			40.05.02.02-Power supply cabling	
			40.05.02.03-Monitor & control cabling	
			40.05.02.04-FLOOG coaxial cabling	
			40.05.02.05-Other cabling	
	40.06-Front end integrated calibration & widgets			
		40.06.00-General		
			40.06.00.00-General	
		40.06.02-Solar protection		
			40.06.02.00-General	
			40.06.02.01-Solar filter	
		40.06.03-Polarization widgets		
			40.06.03.00-General	
			40.06.03.01-Quarter-Wave-Plate	
			40.06.03.02-Quarter Wave Plate Controller	
			40.06.03.03-Quarter Wave Plate Linear Drive	
		40.06.04-Dual-load calibration unit		
			40.06.04.00-General	
			40.06.04.01-Hot Load	
			40.06.04.02-Ambient Load	
			40.06.04.03-Hot/Ambient Load Controller	
		40.06.05-Robotic Arm		
			40.06.05.00-General	
			40.06.05.01-Robotic Arm Controller	
			40.06.05.02-Robotic Arm AMB Interface	
			40.06.05.03-Robotic Arm Power Supply	
			40.06.05.04-Robotic Arm Mechanics	



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			40.06.05.05-Calibration Wheel	
			40.06.05.06-Electronic Box	
	40.07-Water vapour radiometer			
		40.07.00-General		
			40.07.00.00-General	
		40.07.01-WVR Unit		
			40.07.01.00 - General	
			40.07.01.01-WVR Chopper Assembly	
			40.07.01.02-WVR RF Sub-system	
			40.07.01.03-WVR Control Unit	
			40.07.01.04-WVR Power Unit	
			40.07.01.05-WVR Window	
			40.07.01.06-WVR Embedded Software	
			40.07.01.07-WVR Unit Housing	
		40.07.02-WVR Optical Relay		
			40.07.02.00-General	
		40.07.03-WVR Mounting Frame		
			40.07.03.00-General	
		40.07.04-WVR Service Equipment		
			40.07.04.00-General	
			40.07.04.01-MISTE Box	
			40.07.04.02-WVR Service Client Software	
	40.08-Front end IF			
		40.08.00-General		
			40.08.00.00-General	
		40.08.01-IF switch sub-system		
			40.08.01.00-General	
			40.08.01.01-IF Switch Module	
			40.08.01.02-IF Switch Control Module	
	40.09-Front end specific test, construction & service equipment			
		40.09.00-General		
			40.09.00.00-General	
		40.09.01-SIS mixer fabrication equipment		
			40.09.01.00-General	
		40.09.02-SIS mixer test equipment		
			40.09.02.00-General	



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		40.09.03-Front End Test and Measurement System		
			40.09.03.00-General	
		40.09.04-Cartridge test dewars		
			40.09.04.00-General	
		40.09.05-Cartridge RF test fixtures		
			40.09.05.00-General	
		40.09.06-Front end service vehicle		
			40.09.06.00-General	
			40.09.06.10-Working Cabin	
			40.09.06.20-Vehicle	
			40.09.06.30-Scissors Lift	
			40.09.06.40-Hydraulic System	
			40.09.06.50-Leveling	
			40.09.06.60-Tailgate and Front Platform	
			40.09.06.70-Electrical Power and Control	
			40.09.06.80-Heating and Cooling	
			40.09.06.90-System Testing	
		40.09.07-Front End Integration Centre		
			40.09.07.00-General	
		40.09.08-Front End Handling Vehicle		
			40.09.08.00-General	
			40.09.08.10-Mechanical Design	
			40.09.08.20-Hydraulic & Electrical Design	
			40.09.08.30-System Testing	
			40.09.08.40-Operation & Maintenance	
		40.09.09-Front End Mockup		
			40.09.09.00-Mockup Front End Assembly	
			40.09.09.01-Mockup Cryostat	
			40.09.09.02-Mockup Electronics Chassis	
		40.09.10-Auxilliary Electronics Mockup Power Supply (AEU)		
			40.09.10.00-Mockup Power Supply (AEU)	
		40.09.11-FE CPDS Test Set		
			40.09.11.00-General	
			40.09.11.01-FE CPDS Test Set Electronics	
			40.09.11.02-FE CPDS Test Set Mechanical	



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			40.09.11.03-FE CPDS Test Set Cabling/Wiring	
			40.09.11.04-FE CPDS Test Set Software/Firmware	
			40.09.11.10-CPDS ATE General	
			40.09.11.11-CPDS ATE Electronics	
			40.09.11.12-CPDS ATE Mechanics	
			40.09.11.13-CPDS ATE Software/Firmware	
		40.09.12-FE IF Switch M&C Module Test		
			40.09.12.00-General	
			40.09.12.01-FE IF Switch M&C Module Test Set Electronics	
			40.09.12.02-FE IF Switch M&C Module Test Set Mechanical	
			40.09.12.03-FE IF Switch M&C Module Test Set Cabling/Wiring	
			40.09.12.04-FE IF Switch M&C Module Test Set Software/Firmware	
		40.09.13-FE IF Switch Module Test Set		
			40.09.13.00-General	
			40.09.13.01-FE IF Switch Module Test Set Electronics	
			40.09.13.02-FE IF Switch Module Test Set Mechanical	
			40.09.13.03-FE IF Switch Module Test Set Cabling/Wiring	
			40.09.13.04-FE IF Switch Module Test Set Software/Firmware	
		40.09.14-FE Compressor M&C Module Test Set		
			40.09.14.00-General	
			40.09.14.01-FE Compressor M&C Module Test Set Electronics	
			40.09.14.02-FE Compressor M&C Module Test Set Mechanical	
			40.09.14.03-FE Compressor M&C Module Test Set Cabling/Wiring	
			40.09.14.04-FE Compressor M&C Module Test Set Software/Firmware	
		40.09.15-FE Cryostat M&C Test Set		
			40.09.15.00-General	



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			40.09.15.01-FE Cryostat M&C Test Set Electronics	
			40.09.15.02-FE Cryostat M&C Test Set Mechanical	
			40.09.15.03-FE Cryostat M&C Test Set Cabling/Wiring	
			40.09.15.04-FE Cryostat M&C Test Set Software/Firmware	
		40.09.16-FEMC Module Test Set		
			40.09.16.00-General	
			40.09.16.01-FEMC Module Test Set Electronics	
			40.09.16.02-FEMC Module Test Set Mechanical	
			40.09.16.03-FEMC Module Test Set Cabling/Wiring	
			40.09.16.04-FEMC Module Test Set Software/Firmware	
		40.09.17-FE Thermal Interlock Module Test Set		
			40.09.17.00-General	
			40.09.17.01-FE Thermal Interlock Module Test Set Electronics	
			40.09.17.02-FE Thermal Interlock Module Test Set Mechanical	
			40.09.17.03-FE Thermal Interlock Module Test Set Cabling/Wiring	
			40.09.17.04-FE Thermal Interlock Module Test Set Software/Firmware	
		40.09.18-CCA/WCA Benchtop Test Set		
			40.09.18.00-General	
			40.09.18.01-CCA/WCA Benchtop Test Set Electronics	
			40.09.18.02-CCA/WCA Benchtop Test Set Mechanical	
			40.09.18.03-CCA/WCA Benchtop Test Set Cabling/Wiring	
			40.09.18.04-CCA/WCA Benchtop Test Set Software/Firmware	
		40.09.19-Bias Module ATE		
			40.09.19.00-Bias Module ATE General	
			40.09.19.10-Bias Module ATE Electronics	
			40.09.19.20-Bias Module ATE Mechanics	
			40.09.19.30-Bias Module ATE Software/Firmware	



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	40.10-First local oscillator			
		40.10.00-General		
			40.10.00.00-General	
		40.10.01-Band 1 First Local Oscillator		
			40.10.01.00-General	
			40.10.01.01-YIG Tuned Oscillator	
			40.10.01.02-Band 1 RF Module	
			40.10.01.03-Band 1 Monitor & Control Phase Lock Loop Assembly	
			40.10.01.04-Unused	
			40.10.01.05-Heat Sinks	
			40.10.01.06-Unused	
			40.10.01.07-YTO and PLL IF Cables	
			40.10.01.08-Unused	
		40.10.02-Band 2 First Local Oscillator		
			40.10.02.00-General	
		40.10.03-Band 3 First Local Oscillator		
			40.10.03.00-General	
			40.10.03.01-YIG Tuned Oscillator	
			40.10.03.02-Active Multiplier Chain	
			40.10.03.03-PLL Box	
			40.10.03.04-LO Controller	
			40.10.03.05-Heat Sinks	
			40.10.03.06-Waveguides	
			40.10.03.07-Cables and Connectors	
			40.10.03.08-Power Amplifier	
		40.10.04-Band 4 First Local Oscillator		
			40.10.04.00-General	
			40.10.04.01-YIG Tuned Oscillator	
			40.10.04.02-Active Multiplier Chain	
			40.10.04.03-PLL Box	
			40.10.04.04-LO Controller	
			40.10.04.05-Heat Sinks	
			40.10.04.06-Waveguides	
			40.10.04.07-Cables and Connectors	
			40.10.04.08-Power Amplifier	
		40.10.05-Band 5 First Local Oscillator		
			40.10.05.00-General	



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			40.10.05.01-YIG Tuned Oscillator	
			40.10.05.02-Active Multiplier Chain	
			40.10.05.03-PLL Box	
			40.10.05.04-LO Controller	
			40.10.05.05-Heat Sinks	
			40.10.05.06-Waveguides	
			40.10.05.07-Cables and Connectors	
			40.10.05.08-Power Amplifier	
		40.10.06-Band 6 First Local Oscillator		
			40.10.06.00-General	
			40.10.06.01-YIG Tuned Oscillator	
			40.10.06.02-Active Multiplier Chain	
			40.10.06.03-PLL Box	
			40.10.06.04-LO Controller	
			40.10.06.05-Heat Sinks	
			40.10.06.06-Waveguides	
			40.10.06.07-Cables and Connectors	
			40.10.06.08-Power Amplifier	
		40.10.07-Band 7 First Local Oscillator		
			40.10.07.00-General	
			40.10.07.01-YIG Tuned Oscillator	
			40.10.07.02-Active Multiplier Chain	
			40.10.07.03-PLL Box	
			40.10.07.04-LO Controller	
			40.10.07.05-Heat Sinks	
			40.10.07.06-Waveguides	
			40.10.07.07-Cables and Connectors	
			40.10.07.08-Power Amplifier	
		40.10.08-Band 8 First Local Oscillator		
			40.10.08.00-General	
			40.10.08.01-YIG Tuned Oscillator	
			40.10.08.02-Active Multiplier Chain	
			40.10.08.03-PLL Box	
			40.10.08.04-LO Controller	
			40.10.08.05-Heat Sinks	
			40.10.08.06-Waveguides	
			40.10.08.07-Cables and Connectors	



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			40.10.08.08-Power Amplifier	
		40.10.09-Band 9 First Local Oscillator		
			40.10.09.00-General	
			40.10.09.01-YIG Tuned Oscillator	
			40.10.09.02-Active Multiplier Chain	
			40.10.09.03-PLL Box	
			40.10.09.04-LO Controller	
			40.10.09.05-Heat Sinks	
			40.10.09.06-Waveguides	
			40.10.09.07-Cables and Connectors	
			40.10.09.08-Power Amplifier	
		40.10.10-Band 10 First Local Oscillator		
			40.10.10.00-General	
			40.10.10.01 YIG Tuned Oscillator	
			40.10.10.02 Active Multiplier Chain	
			40.10.10.03 PLL Box	
			40.10.10.04 LO Controller	
			40.10.10.05 Heat Sinks	
			40.10.10.06 Waveguides	
			40.10.10.07 Cables and Connectors	
			40.10.10.08 Power Amplifier	
	40.11-Warm Cartridge Assembly			
		40.11.00-General		
		40.11.01-Band 1 Warm Cartridge assembly		
			40.11.01.00-General	
			40.11.01.01-Frame	
			40.11.01.02-Main Wiring Harness	
			40.11.01.03-Cables and Connectors	
			40.11.01.04-Band 1 WCA Low noise amplifier	
			40.11.01.05-Band 1 High pass filter	
			40.11.01.06-Band 1 Mixer	
			40.11.01.07-Band 1 IF Low noise amplifier	
			40.11.01.08-Band 1 Band Pass filter	
			40.11.01.09-Photomixer assembly	
		40.11.02-Band 2 Warm Cartridge assembly		



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		40.11.03-Band 3 Warm Cartridge assembly		
			40.11.03.00-General	
			40.11.03.01-Frame	
			40.11.03.02-Main Wiring Harness	
			40.11.03.03-Cables and Connectors	
		40.11.04-Band 4 Warm Cartridge assembly		
			40.11.04.00-General	
			40.11.04.01-Frame	
			40.11.04.02-Main Wiring Harness	
			40.11.04.03-Cables and Connectors	
		40.11.05-Band 5 Warm Cartridge assembly		
			40.11.05.00-General	
			40.11.05.01-Frame	
			40.11.05.02-Main Wiring Harness	
			40.11.05.03-Cables and Connectors	
		40.11.06-Band 6 Warm Cartridge assembly		
			40.11.06.00-General	
			40.11.06.01-Frame	
			40.11.06.02-Main Wiring Harness	
			40.11.06.03-Cables and Connectors	
		40.11.07-Band 7 Warm Cartridge assembly		
			40.11.07.00-General	
			40.11.07.01-Frame	
			40.11.07.02-Main Wiring Harness	
			40.11.07.03-Cables and Connectors	
		40.11.08-Band 8 Warm Cartridge assembly		
			40.11.08.00-General	
			40.11.08.01-Frame	
			40.11.08.02-Main Wiring Harness	
			40.11.08.03-Cables and Connectors	
		40.11.09-Band 9 Warm Cartridge assembly		
			40.11.09.00-General	



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			40.11.09.02-Main Wiring Harness	
			40.11.09.03-Cables and Connectors	
		40.11.10-Band 10 Warm Cartridge assembly		
			40.11.10.00-General	
			40.11.10.01-Frame	
			40.11.10.02-Main Wiring Harness	
			40.11.10.03-Cables and Connectors	
	40.90-Front end Design Reviews			
		40.90.00-General		
			40.90.00.00-General	
41-ATF Evaluation Front end				
	41.00-General			
		41.00.00-General		
			41.00.00.00-General	
	41.01-Front end Chassis			
		41.01.00-General		
			41.01.00.00-General	
		41.01.01-Chassis Mechanical		
			41.01.01.00-General	
		41.01.02-Chassis Stress and Temperature Analysis		
			41.01.02.00-General	
		41.01.03-FE - Antenna Mechanical Interface Plate		
			41.01.03.00-General	
	41.02-Cryostat			
		41.02.00-General		
			41.02.00.00-General	
		41.02.01-Dewar		
			41.02.01.00-General	
			41.02.01.01-Vacuum vessel	
			41.02.01.02-Radiation shields	
			41.02.01.03-Mounting plates	
			41.02.01.04-Windows & IR filters	
			41.02.01.05-Evacuation valve	
		41.02.02-Cryocoolers		
			41.02.02.00-General	



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			41.02.02.02-G-M cryocooler	
			41.02.02.03-Helium Compressor	
		41.02.03-Vacuum pumps		
			41.02.03.00-General	
			41.02.03.01-Roughing pump	
			41.02.03.02-High vacuum pump	
			41.02.03.03-Vacuum meters	
		41.02.04-Cryostat electrical infrastructure		
			41.02.04.00-General	
			41.02.04.01-Electrical feed-throughs	
			41.02.04.02-Dewar wiring	
			41.02.04.03-Temperature sensors	
			41.02.04.04-Vacuum transducers	
	41.03-Cartridges			
		41.03.00-General		
			41.03.00.00-General	
		41.03.01-3mm rcvr cartridge		
			41.03.01.00-General	
		41.03.02-1mm rcvr cartridge		
			41.03.02.00-General	
	41.04-LO1 Assy			
		41.04.00-General		
			41.04.00.00-General	
		41.04.01-3mm rcvr LO1		
			41.04.01.00-General	
		41.04.02-1mm rcvr LO1		
			41.04.02.00-General	
	41.05-Electronics Bin			
		41.05.00-General		
			41.05.00.00-General	
		41.05.01-Dewar Monitoring Module		
			41.05.01.00-General	
		41.05.02-Bias and Control Module		
			41.05.02.00-General	
		41.05.03-IF Module		
			41.05.03.00-General	
		41.05.04-LO1 Controller Module		



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		41.05.05-Photonic Reference Receiver Module		
			41.05.05.00-General	
	41.06-Chopper Assy			
		41.06.00-General		
			41.06.00.00-General	
	41.07-Power Supplies Assy			
		41.07.00-General		
			41.07.00.00-General	
	41.08-Evaluation Receiver Test and Measurements			
		41.08.00-General		
			41.08.00.00-General	
42-ATF Holography System				
	42.01-ATF Holography Transmitter			
		42.01.00-General		
			42.01.00.00-General	
		42.01.01-Holography Tx Tower		
			42.01.01.00-General	
		42.01.02-Holography Transmitter Assy		
			42.01.02.00-General	
	42.02-ATF Holography Receiver			
		42.02.00-General		
			42.02.00.00-General	
		42.02.01-Electronics		
			42.02.01.00-General	
		42.02.02-Mechanical		
			42.02.02.00-General	
		42.02.03-Receiver Test and Measurement		
			42.02.03.00-General	
43-7m Array Holography Receiver				
	43.00-General			
		43.00.00-General		
			43.00.00.00-General	
44-ACA 7m Front End				
	44.00-General			
		44.00.00-General		



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			44.00.00.00-General	
	44.01-ACA common optics			
		44.01.01- ACA Band 1 common optics		
		44.01.02- ACA Band 2 common optics		
		44.01.05- ACA Band 5 common optics		
		44.01.06- ACA Band 6 common optics		
		44.01.07- ACA pyramidal mirror		
45-OSF Holography System				
	45.01-OSF Holography Transmitter			
	45.02-OSF Holography Receiver			
	45.03-NAOJ Holography Receiver			
46-ACA Frontend Integration				
	46.00-General			
		46.00.00-General		
			46.00.00.00-General	
50-Back End (BE)				
	50.00-General			
		50.00.00-General		
			50.00.00.00-General	
	50.01-Central LO Article (CLOA)			
		50.01.00-General		
			50.01.00.00-General	
	50.02-temporary Central LO Test Stand (tCLOTS)			
		50.02.00-General		
			50.02.00.00-General	
		50.02.01-temporary Central LO (tCLOTS) rack		
			50.02.01.00-General	
			50.02.01.03-tCLOTS power supply	
			50.02.01.04-tCLOTS bin hardware	
			50.02.01.05-tCLOTS RF amplifiers	
			50.02.01.06-tCLOTS cables and wiring	
			50.02.01.07-tCLOTS rack hardware	
		50.02.02-tCLOTS LLC/SAS rack		
			50.02.02.00-General	



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	50.03-LO Photonic Receiver (LPRA)			
		50.03.00-General		
			50.03.00.00-General	
	50.04-Single Dish Timing Rack (SDTR)			
		50.04.00-General		
			50.04.00.00-General	
		50.04.01-SDTR rack		
			50.04.01.00-General	
			50.04.01.01-prototype Central Reference Generator (pCRG)	
			50.04.01.02-prototype Central Reference Distributor (pCRD)	
			50.04.01.03-SDTR cables	
			50.04.01.04-Laptop with Labview GUI	
	50.05-CLOA test stand			
		50.05.00-General		
			50.05.00.00-General	
		50.05.01-CLOA mobile test rack		
			50.05.01.00-General	
		50.05.02-Standalone equipment		
			50.05.02.00-General	
52-IF Processor Sub-subsystem IFPS				
	52.00-General			
		52.00.00-General		
			52.00.00.00-General	
		52.00.01-IFP metalwork		
			52.00.01.05-IFP Metalwork	
	52.01-IF Processor IFP LRU, contains IFDC and TPD&MC			
		52.01.00-IFP General		
			52.01.00.00-IFP General	
		52.01.01-IFP module construction		
			52.01.01.00-General	
			52.01.01.01-IFP plugin wiring	
			52.01.01.05-IFP mechanical assembly	
		52.01.02-IFP highpass filter		
			52.01.02.00-General	
		52.01.03-IFP passband slope equalizers		



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		52.01.04-IFP lowpass filter		
			52.01.04.00-General	
	52.05-IF Downconverter IFDC assembly prototype			
		52.05.00-General		
			52.05.00.00-General	
		52.05.01-Plugin module construction		
			52.05.01.00-General	
		52.05.02-IF input assembly (2/LRU)		
			52.05.02.00-General	
		52.05.03-IF switch assembly (1/LRU)		
			52.05.03.00-General	
		52.05.04-Baseband output subassembly (4 per LRU) & bandpass filters (4 per LRU)		
			52.05.04.00-General	
		52.05.05-Power and SPI interface board		
			52.05.05.00-General	
		52.05.06-IFDC firmware for power and SPI interface board		
			52.05.06.00-General	
		52.05.07-IFDC mounting plate & thermal interface		
			52.05.07.00-General	
	52.06-IF Downconverter IFDC assembly production			
		52.06.00-General		
			52.06.00.00-General	
		52.06.01-Assembly construction		
			52.06.01.00-General	
			52.06.01.01-IFDC Mechanical Assembly	
		52.06.02-IFDC IF input subassembly (2 per IFDC)		
			52.06.02.00- General	
		52.06.03-IFDC IF switch subassembly (2 per IFDC)		
			52.06.03.00- General	
		52.06.04-IFDC baseband output subassembly (4 per IFDC) and bandpass filter (4 per LRU)		
			52.06.04.00- General	



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		52.06.05-IFDC power and SPI interface board		
			52.06.05.00- General	
		52.06.06-IFDC firmware for power and SPI interface board		
			52.06.06.00-General	
		52.06.07-IFDC mounting plate & thermal interface		
			52.06.07.00-General	
		52.06.08-IFDC power dividers (4 per IFDC)		
	52.07-IFP TPD&MC total power digitizer & monitor control motherboard			
		52.07.00-IFP TPD&MC General		
			52.07.00.00-General	
		52.07.01-IFP FPGA firmware for TPD&MC motherboard		
			52.07.01.00- General	
		52.07.02-IFP TPD&MC Ethernet bridge daughter board		
			52.07.02.00- General	
		52.07.03-Assembly construction		
			52.07.03.00-General	
			52.07.03.01-TPD&MC mechanical assembly	
	52.08-IF Processor LRU test stand IFPT			
		52.08.00-General		
			52.08.00.00- General	
		52.08.01-IFPT construction		
			52.08.01.00- General	
		52.08.02-IFPT test equipment		
			52.08.02.00- General	
		52.08.03-IFPT DEV plug-in module		
			52.08.03.00-General	
			52.08.03.01-DEV construction	
			52.08.03.02- Development board	
			52.08.03.03-Filter board	
		52.08.04-IFPT plugin Pseudo Front End module (PFE)		
			52.08.04.00- General	



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			52.08.04.01-PFE construction	
		52.08.05-Tilt-rack assembly		
			52.08.05.00- General	
		52.08.06-IFPT calibration module		
			52.08.06.00-General	
	52.10-TPD&MC test stand			
		52.10.00-General		
			52.10.00.00-General	
53-Data Transmission Sub-system DTS				
	53.00-General			
		53.00.00-General		
			53.00.00.00-General	
	53.01-Digitizer DG assembly (located inside DTX LRU)			
		53.01.00-General		
			53.01.00.00-General	
		53.01.01-Digitizer service board DGSB assembly		
			53.01.01.00-General	
			53.01.01.01-DGSB circuit board	
			53.01.01.02-DGSB firmware	
		53.01.02-Digitizer sampler DGS		
			53.01.02.00-General	
			53.01.02.01-DGS circuit board	
		53.01.04-DG wiring harness		
			53.01.04.00-General	
		53.01.06-Digitizer sampler test equipment DTE		
			53.01.06.00-General	
			53.01.06.01-DTE correlator board with FPGA	
			53.01.06.02-DTE backplane	
			53.01.06.03-DTE firmware	
			53.01.06.04-DTE software for PC	
			53.01.06.05-DTE mechanical parts	
	53.04-Digitizer clock DGCK LRU			



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		53.04.00-DGCK boards, firmware, power supplies, harnesses		
			53.04.00.00-General	
			53.04.00.01-DGCK clock circuit assembly (output 250 MHz & 4 GHz)	
			53.04.00.02-DGCK firmware	
			53.04.00.03-DGCK timing distribution and MC board	
			53.04.00.04-DGCK wiring harness (including circuit board), and cable assemblies	
		53.04.01-DGCK module		
			53.04.01.00-General	
			53.04.01.01-DGCK mechanical assembly	
	53.05-Formatter FR assembly (located inside DTX LRU)			
		53.05.00-FR circuit board and firmware		
			53.05.00.00-General	
			53.05.00.01-FR circuit board with FPGAs and 1/2 transponders	
			53.05.00.02-FR-BBpr0 1/2 transponder wavelength channels 21, 23 and 25	
			53.05.00.03-FR-BBpr1 1/2 transponder wavelength channels 27, 29 and 31	
			53.05.00.04-FR-BBpr2 1/2 transponder wavelength channels 33, 35 and 37	
			53.05.00.05-FR-BBpr3 1/2 transponder wavelength channels 39, 41 and 43	
			53.05.00.06-FR firmware	
	53.06-Data receiver DRX LRU			
		53.06.00-DRX boards and firmware		
			53.06.00.00-General	
			53.06.00.01-Deformatter DFR circuit board	
			53.06.00.02-Deformatter DFR firmware	
			53.06.00.03-DRX receive-only optical transponder	
			53.06.00.04-DRX optical connector mounting plate	



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	53.07-Transmitter monitor, control and power supply MCPS assembly (located inside DTX LRU)			
		53.07.00-MCPS boards and firmware		
			53.07.00.00-General	
			53.07.00.01-MCPS circuit board	
			53.07.00.02-Power harness including circuit board	
			53.07.00.03-MCPS firmware	
	53.08-Data transmitter DTX (contains DG, FR, MCPS assemblies) (4 per antenna)			
		53.08.00-General		
			53.08.00.00-General	
		53.08.01-DTX back plane board, DG to FR transmitter		
			53.08.01.00-General	
		53.08.02-DTX-BBpr0 LRU 1/2 transponder wavelength channels 21, 23 and 25		
			53.08.02.00-General	
		53.08.03-DTX-BBpr1 LRU 1/2 transponder wavelength channels 27, 29 and 31		
			53.08.03.00-General	
		53.08.04-DTX-BBpr2 LRU 1.2 transponder wavelength channels 33, 35 and 37		
			53.08.04.00-General	
		53.08.05-DTX-BBpr3 LRU 1/2 transponder wavelength channels 39, 41 and 43		
			53.08.05.00-General	
		53.08.06-DTX assemblies in digital rack		
			53.08.06.00-General	
			53.08.06.01-DTX mechanical assembly	
			53.08.06.02-DTX insert mechanical assembly	
			53.08.06.03-DTX shell mechanical assembly	
			53.08.06.04-Other DTX sub-assemblies	



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		53.08.07-DTX cable & wiring assemblies		
			53.08.07.00-General	
	53.10-Data transmission sub-subsystem test stand DTST			
		53.10.00-DTST General		
			53.10.00.00-General	
		53.10.01-DTST Labview software		
			53.10.01.00-General	
		53.10.02-DTST rack		
			53.10.02.00-General	
		53.10.03-DTST bin		
			53.10.03.00-General	
		53.10.04-DTST 48VDC power supply and distribution		
			53.10.04.00-General	
		53.10.05-DTST backplane		
			53.10.05.00-General	
		53.10.06-DTST 125 MHz / 48 msec source		
			53.10.06.00-General	
		53.10.07-DTST pseudo IF assembly		
			53.10.07.00-General	
		53.10.08-DTST optical fiber attenuators		
			53.10.08.00-General	
		53.10.09-DTST cables with connectors		
			53.10.09.00-General	
		53.10.10-DTST computer (Lab View with CAN Interface Card)		
			53.10.10.00-General	
54-Fiber Optic Transmission Sub-subsystem FOTS				
	54.00-General			
		54.00.00-General		
			54.00.00.00-General	
	54.02-Fiber optic DWDM multiplexer FOM LRU			
		54.02.00-General		
			54.02.00.00-General	
		54.02.01-FOM assembled circuit board		



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			54.02.01.00-General	
			54.02.01.02-Firmware	
		54.02.02-FOM chassis		
			54.02.02.00-General	
			54.02.02.01-Chassis cover	
			54.02.02.02-Chassis bracket	
			54.02.02.06-Chassis tray	
		54.02.03-Safety (keep alive) link assembly		
			54.02.03.00- General	
		54.02.04-DWDM Mux		
			54.02.04.00-General	
			54.02.04.00-General	
	54.03-Fiber connector & splice boxes			
		54.03.00-General		
			54.03.00.00-General	
		54.03.01-LO fiber splice box in antenna cabin fiber between analog rack and elevation FOW, contains ODF (1:2)		
			54.03.01.00- General	
		54.03.02-DTS fiber splice box in antenna cabin between elevation wrap and digital rack (8:8 fibers)		
			54.03.02.00- General	
		54.03.03-Yoke arm fiber splice box above azimuth wrap (fibers to azimuth wrap and azimuth FOW: fibers to pad)		
			54.03.03.00- General	
		54.03.04-Antenna pedestal fiber splice box above azimuth wrap (fibers to azimuth wrap and azimuth FOW: fibers)		
			54.03.04.00- General	
		54.03.05-Fiber connector wall-box in antenna pad vault (8:8 fibers)		
			54.03.05.00-General	
		54.03.06-AOS-TB fiber splice box (175 cables: 64x5 fibers, located inside ODC)		
			54.03.06.00-General	
		54.03.07-DRX fiber splice box (66x12: 128x3 fibers)		
			54.03.07.00-General	



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		54.03.08-Antenna azimuth platform splice box		
			54.03.08.00-General	
	54.05-Fiber optic amplifier & demultiplexer FOAD			
		54.05.00-General		
			54.05.00.00-General	
		54.05.01-FOAD crate assembly LRU		
			54.05.01.00-General	
			54.05.01.03-CAN cable assembly	
			54.05.01.10-Assembled backplane FOA-B	
		54.05.02-FOAD plugin module LRU FOA		
			54.05.02.00-General	
			54.05.02.01-FOAD plugin housing	
			54.05.02.02-Ribbon Cable – FOA-C to EDFA	
			54.05.02.04-DWDM DeMux	
			54.05.02.05-EDFA	
			54.05.02.10-FOAD temperature sensor assembly	
			54.05.02.20-Assembled controller circuit board FOA-C	
			54.05.02.22-FOAD firmware	
			54.05.02.30-DWDM DeMux	
			54.05.02.40-EDFA	
		54.05.05-FOAD rack		
			54.05.05.00-General	
		54.05.06-FOAD power supply bin		
			54.05.06.00-General	
		54.05.07-FOAD power supply		
			54.05.07.00-General	
	54.09-Optical fiber cable OFC			
		54.09.00-General		
			54.09.00.00-General	
		54.09.01-Optical fiber cables internal to antenna OFCA (8-fiber loose tube)		
			54.09.01.00- General	
		54.09.02-Antenna fiber optic wrap assemblies FOW		



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			54.09.02.00- General	
			54.09.02.01-Fiber wrap mechanical assembly	
			54.09.02.02-Azimuth on-axis wrap mounting assembly (Vertex)	
			54.09.02.03-Elevation on-axis wrap mounting assembly (Vertex)	
			54.09.02.04-Azimuth on-axis wrap mounting assembly (Alcatel)	
			54.09.02.05-Elevation on-axis wrap mounting assembly (Alcatel)	
			54.09.02.06-Azimuth on-axis wrap mounting assembly (Mitsubishi)	
			54.09.02.07-Elevation on-axis wrap mounting assembly (Mitsubishi)	
			54.09.02.08-FOW optical fiber cable	
			54.09.02.09-FOW yoke arm interconnect box (MELCO)	
			54.09.02.10-FOW yoke arm interconnect box (Vertex)	
			54.09.02.11-FOW yoke arm interconnect box (Alcatel)	
		54.09.03-External optical fiber cable (in ground) OFCB (8-fiber loose tube between antenna pad vaults and ODF		
			54.09.03.00- General	
		54.09.05-Optical fiber cables internal to technical building OFTB		
			54.09.05.00- General	
		54.09.06-Fiber on-axis wrap test stand FOWT		
			54.09.06.00-General	
			54.09.06.01-FOWT mechanical assembly	
			54.09.06.02-FOWT optoelectronic and test assemblies	
	54.10-Fiber management racks (located in AOS-TB)			
		54.10.00- General		
			54.10.00.00- General	
		54.10.02-Patch panel racks (DTS, PLO, M&C)		
			54.10.02.00- General	



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	54.15-Optical amplifiers for ACA			
		54.15.10-Optical Amplifier		
		54.15.20-Chassis for optical amplifier		
		54.15.30-Optical fiber adapter		
		54.15.40-Optical fiber: FOAD input – optical amplifier		
		54.15.50-Optical fiber: optical amplifier – DWDM input		
		54.15.80-Ethernet cable		
		54.15.90-PDU		
	54.20-Optical splitters for ACA			
		54.20.10-Optical splitter		
		54.20.20-Chassis for optical splitter		
		54.20.30-Optical fiber adapter		
		54.20.40-Optical fiber: E2000 - optical splitter		
		54.20.50-Optical fiber: optical splitter – ACA Correlator		
		54.20.60-Optical fiber: optical splitter – ACA Spectrometer		
55-LO & Time Reference Sub-subsystem LOT				
	55.00-General			
		55.00.00-General		
			55.00.00.00-General	
	55.01-Master Frequency Standard MFS LRU			
		55.01.00-General		
			55.01.00.00-General	
		55.01.01-Rubidium frequency standard RFS		
			55.01.01.00- General	
		55.01.02-Hydrogen maser frequency standard HMFS (future)		
			55.01.02.00- General	
	55.02-Central Reference Distributor CRD LRU			
		55.02.00-General		
			55.02.00.00-General	
			55.02.00.01-CRD Monitor and Control PCB	
		55.02.03-CRD module		



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			55.02.03.01-CRD mechanical assembly	
	55.03-Central Reference Generator CRG LRU			
		55.03.00-General		
			55.03.00.00-General	
			55.03.00.01-CRG voltage regulator/detector PCB	
			55.03.00.02-12 VDC regulator	
		55.03.01-CRG primary component plate assembly		
			55.03.01.00- General	
		55.03.02-CRG secondary component plate assembly		
			55.03.02.00- General	
		55.03.03- CRG Module		
			55.03.03.00- General	
			55.03.03.01-CRG mechanical assembly	
	55.04-LO Reference Receiver LORR LRU			
		55.04.00-General		
			55.04.00.00-General	
		55.04.01-LORR monitor and control PCB		
			55.04.01.00-General	
			55.04.01.01-LORR monitor and control PCB	
			55.04.01.02-LORR monitor control firmware	
			55.04.01.03-LORR monitor control mounting plate	
		55.04.02-LORR comb generator assembly		
			55.04.02.00-General	
		55.04.04-LORR comb line PLL assembly		
			55.04.04.00-General	
			55.04.04.01-PLL housing and PCB	
		55.04.05-LORR heatsink component assembly		
			55.04.05.00-General	
			55.04.05.01-LORR 125 MHz band pass filter assembly	
			55.04.05.02-LORR 125 MHz comb generator assembly	



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			55.04.05.03-LORR 125 MHz PLL assembly	
			55.04.05.04-LORR 8-14 GHz comb line amplifier assembly	
			55.04.05.05-LORR comb line coupler assembly	
			55.04.05.06-LORR diplexer assembly	
			55.04.05.07-LORR comb line PLL BPF assembly	
		55.04.06-LORR secondary component plate assembly		
			55.04.06.00-General	
		55.04.07-LORR module		
			55.04.07.00- General	
			55.04.07.01-LORR mechanical assembly	
			55.04.07.02-LORR wiring	
			55.04.07.03-LORR connectors	
		55.04.10-LORR fiber optic module LORR-FO (temporary LRU)		
			55.04.10.00-General	
		55.04.11-LORR AMBSI-2 interface PCB		
			55.04.11.00-General	
	55.05-Second LO synthesizer LO2 LRU			
		55.05.00-General		
			55.05.00.00-General	
		55.05.01-LO2 monitor and control PCB assembly		
			55.05.01.00-General	
			55.05.01.01-LO2 monitor and control circuit board	
			55.05.01.02-LO2 monitor control firmware	
		55.05.02-LO2 regulator PCB assembly		
			55.05.02.00-General	
			55.05.02.01-LO2 regulator circuit board	
			55.05.02.02-LO2 regulator PCB supports	
		55.05.03-LO2 PLL and fine tuning synthesizer assembly		
			55.05.03.00-General	
			55.05.03.01-LO2 PLL circuit board assembly	



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			55.05.03.03-LO2 PCB housing	
			55.05.03.04-LO2 FTS firmware	
		55.05.04-LO2 IF and lowpass filter assembly		
			55.05.04.00-General	
			55.05.04.01-LO2 IF assembly	
			55.05.04.02-LO2 IF lowpass filter	
		55.05.05-LO2 coupled power divider assembly		
			55.05.05.00-General	
		55.05.06-LO2 amplifier and low pass filter assembly		
			55.05.06.00-General	
		55.05.07-LO2 digital YIG Tuned Oscillator (DYTO) assembly		
			55.05.07.00-General	
		55.05.08-LO2 module assembly		
			55.05.08.00- General	
			55.05.08.01-LO2 mechanical assembly	
			55.05.08.02-LO2 module wiring harness	
			55.05.08.03-LO2 module connectors	
	55.07-First LO Offset Generator FLOOG LRU			
		55.07.00-General		
			55.07.00.00-General	
		55.07.01- FLOOG FTS PCB assembly		
			55.07.01.00- General	
			55.07.01.01-FLOOG FTS circuit board	
		55.07.02-FLOOG FTS firmware		
			55.07.02.00- General	
		55.07.03-FLOOG regulator PCB assemblies		
			55.07.03.00- General	
			55.07.03.01-FLOOG regulator circuit board	
		55.07.04-FLOOG module		
			55.07.04.00- General	



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			55.07.04.02-FLOOG module wiring	
			55.07.04.03-FLOOG module connectors	
		55.07.05-FTS2 assembly for FEND Integration Center		
			55.07.05.00-General	
		55.07.06-FLOOG FTS AMBSI-2 interface PCB		
			55.07.06.00-General	
		55.07.07-LPF Assembly		
			55.07.07.00-General	
	55.09-5, 10 and 125 MHz reference distributors, Central LO			
		55.09.00-General		
			55.09.00.00-General	
		55.09.01-CRG distribution panel assembly		
			55.09.01.00- General	
			55.09.01.01-CRG distribution panel mechanical assembly	
	55.10-LORR distributor LORRD in antenna analog rack			
		55.10.00-General		
			55.10.00.00-General & CIDL	
		55.10.04-LORR distributor panel		
			55.10.04.00-General	
			55.10.04.01-LORR distributor panel mechanical assembly	
	55.11-LO & time reference test stand LOTT			
		55.11.00-General		
			55.11.00.00-General	
			55.11.00.00-General	
		55.11.01-Power meter assembly		
			55.11.01.00-General	
		55.11.02-Frequency counter assembly		
			55.11.02.00-General	
		55.11.03-Spectrum analyzer assembly		



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		55.11.04-Switch matrix		
			55.11.04.00-General	
56-Photonic 1st LO Reference Sub- subsystem PLO				
	56.00-General			
		56.00.00-General		
			56.00.00.00-General	
	56.01-Master Laser ML prototype LRU			
		56.01.00-General		
			56.01.00.00-General	
	56.02-Laser Synthesizer LS temporary LRU			
		56.02.00-General		
			56.02.00.00-General	
		56.02.01-LS slave laser SL		
			56.02.01.00-General	
			56.02.01.01-Temporary slave laser CTNLL (Calibrated Tunable Narrow Linewidth Laser)	
		56.02.03-LS optical phase lock loop assembly		
			56.02.03.00-General	
		56.02.04-LS fiber frequency shifter		
			56.02.04.00-General	
		56.02.05-LS harmonic mixer		
			56.02.05.00-General	
		56.02.06-LS wire harnesses		
			56.02.06.00-General	
		56.02.07-LS interface circuit board		
			56.02.07.00- General	
		56.02.08-LS AMBSI-1 firmware		
			56.02.08.00- General	
		56.02.09-LS module parts		
			56.02.09.00- General	
		56.02.10-LS photomixer bias assembly		
			56.02.10.00- General	
		56.02.11-LS RF power amplifier		
			56.02.11.00- General	



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			56.02.12.00- General	
	56.03-Line Length Correction LLC LRU			
		56.03.00-General		
			56.03.00.00-General	
		56.03.01-Production LLC fiber stretcher assembly (FSA)		
			56.03.01.00-General	
		56.03.02-Production LLC mainboard		
			56.03.02.00-General	
			56.03.02.01-Microcontroller firmware	
			56.03.02.02-FPGA/CPLD definition	
		56.03.03-Prototype LLC driver board assembly		
			56.03.03.00-General	
		56.03.06-Prototype LLC DC power regulator PCB		
			56.03.06.00- General	
		56.03.07-Prototype LLC wiring harness		
			56.03.07.00- General	
		56.03.10-Prototype LLC AMBSI-1 firmware		
			56.03.10.00- General	
	56.04-Central Variable Reference synthesizer CVR LRU			
		56.04.00-General		
			56.04.00.00-General	
	56.05-1st LO Photonic Receiver LPR LRU			
		56.05.00-General		
			56.05.00.00-General	
		56.05.01-LPR optical assembly		
			56.05.01.00-General	
			56.05.01.01-Amplified switch path	
			56.05.01.02-Round trip path	
		56.05.02-1st generation LPR fiber patchcord assembly		
			56.05.02.00-General	
			56.05.02.01-Insulated-cable assembly	
			56.05.02.02-Meta-cable assembly	



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			56.05.03.00-General	
		56.05.04-LPR mechanical assembly		
			56.05.04.00-General	
		56.05.05-LPR laser diode PCB		
			56.05.05.00-General	
		56.05.06-LPR interface PCB		
			56.05.06.00- General	
			56.05.06.01-LPR interface PCB firmware	
		56.05.07-Photonic reference receiver PRR (temporary for ATF)		
			56.05.07.00-General	
		56.05.21-LPRA optical tray		
			56.05.21.00-General	
		56.05.22-LPR electrical cable kit		
			56.05.22.00-General	
		56.05.23-3rd generation Fiber metacable assembly		
			56.05.23.00-General	
		56.05.24-LPR module enclosure		
			56.05.24.00-General	
		56.05.25-LPR pump laser PCB assembly		
			56.05.25.00-General	
		56.05.26-26 LPR monitor & control electronics assembly		
			56.05.26.00-General	
		56.05.31-LPRA optical assembly		
			56.05.31.00-General	
	56.06-Low frequency LO reference 1532nm distribution LFRD LRU			
		56.06.00-General		
			56.06.00.00-General	
		56.06.01-Low frequency LO reference 1532 nm distribution for 16-antenna configuration LFRD-16 LRU		
			56.06.01.00-General	



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			56.07.00.00-General	
		56.07.01-Master laser distribution for 16-antenna configuration MLD-PM-16 LRU		
			56.07.01.00-General	
	56.08-Photonic reference distribution PRD LRU			
		56.08.00-General		
			56.08.00.00-General	
		56.08.01-Photonic reference distribution for 16-antenna configuration PRD-16 LRU		
			56.08.01.00-General	
	56.09-Photonic sub array switch SAS LRU			
		56.09.00- General		
			56.09.00.00- General	
		56.09.01-SAS optical module LRU		
			56.09.01.00-General	
		56.09.02-SAS electronic module LRU		
			56.09.02.00- General	
			56.09.02.01-Firmware	
			56.09.02.03-FPGA/CPLD assembly	
	56.10-Optical Diplexer 1532/1557 nm ODF LRU			
		56.10.00-General		
			56.10.00.00-General	
		56.10.01-Fiber cable from ODF to Front End		
			56.10.01.00-General	
		56.10.02-Fiber cable from ODF to Analog Rack		
			56.10.02.00-General	
		56.10.03-Fiber cable from FOW to ODF		
			56.10.03.00-General	
	56.11-Laser synthesizer LS production			
		56.11.00-General		



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			56.11.01.00-General	
			56.11.01.02-PL12B photomixer assembly	
			56.11.01.03-PL10C photomixer assembly	
			56.11.01.04-PL8D photomixer assembly	
		56.11.02-LS documentation by vendor		
			56.11.02.00-General	
		56.11.03-Laser synthesizer LS LRU		
			56.11.03.00-General	
		56.11.04-Laser synthesizer power supply LSPS LRU		
			56.11.04.00-General	
	56.12-Photomixer assemblies			
		56.12.00-General		
			56.12.00.00-General	
		56.12.01-27-33 GHz coaxial photomixer assembly		
			56.12.01.00-General	
		56.12.02-PC12A Bands 4 and 8 photomixer assemblies		
			56.12.02.00-General	
		56.12.03-PC10B Band 3 photomixer assembly		
			56.12.03.00-General	
		56.12.04-PC08C Band 7 photomixer assembly		
			56.12.04.00-General	
		56.12.05-PC10A Band 6 photomixer assembly		
			56.12.05.00-General	
		56.12.06-PC12A Band 9 photomixer assembly		
			56.12.06.00-General	
			56.12.06.01-Faraday rotator mirror assembly	
		56.12.07-PC10C Band 10 photomixer assembly		
			56.12.07.00-General	
		56.12.20-Photomixer bracket assembly		



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	56.13-Master laser ML production			
		56.13.00-General		
			56.13.00.00-General	
		56.13.01-Master Laser Module LM LRU		
			56.13.01.00-General	
		56.13.02-ML documentation by vendor		
			56.13.02.00-General	
		56.13.03-Master Laser Optical Reference Module ORM LRU		
			56.13.03.00-General	
		56.13.04-Master Laser Power Supply MLPS		
			56.13.04.00-General	
	56.14-Photonic LO test stand PLOT			
		56.14.00-General		
			56.14.00.00-General	
		56.14.01-LLC test set		
			56.14.01.00-General	
			56.14.01.01-LLC test set backplane	
			56.14.01.02-LLC test set FSA dummy board	
		56.14.02-LLC/SAS test stand		
			56.14.02.00-General	
			56.14.02.01-LLC/SAS test stand LLC backplane	
			56.14.02.02-LLC/SAS test stand SAS backplane	
			56.14.02.03-LLC/SAS test stand SAS dummy optical board	
		56.14.03-LPR test stand		
			56.14.03.00-General	
			56.14.03.01-LPR test set interconnection module	
		56.14.04-LPR LDD/M&C test and control box		
			56.14.04.00-General	
	56.15-Mach-Zehnder Modulator Laser Synthesizer (MZM-LS)			
		56.15.00-General		
			56.15.00.00-General	



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			56.16.00.00-General	
		56.16.01-FDMC motherboard		
			56.16.01.00-General	
			56.16.01.01-CPLD definition	
		56.16.02-FDMC firmware		
			56.16.02.00-General	
	56.17-Jumpered Optical Splitter External Fiber Assembly (JOSEFA)			
		56.17.00-General		
			56.17.00.00-General	
	56.19-Dual cartridge LO assembly for PTSR			
		56.19.00-General		
			56.19.00.00-General	
	56.20-Phase Detector Module (PDM)			
		56.20.00-General		
			56.20.00.00-General	
57-BE Miscellaneous Equipment				
	57.00-General			
		57.00.00-General		
			57.00.00.00-General	
	57.02-Racks and contents other than LRUs			
		57.02.00-General		
			57.02.00.00-General	
		57.02.01-Digital rack (antenna receiver cabin)		
			57.02.01.00-General	
			57.02.01.01-Coaxial cables	
			57.02.01.02-Wire harnesses	
			57.02.01.03-Top bulkhead	
			57.02.01.04-Bottom bulkhead	
			57.02.01.05-AMBI cables	
			57.02.01.06-Optical fiber cables	
			57.02.01.07-Air baffles	



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			57.02.01.10-Digital rack mechanical assembly	
			57.02.01.11-AMB breakout box	
			57.02.01.12-Breakout box continuity tester	
		57.02.02-Analog rack (antenna receiver cabin)		
			57.02.02.00-General	
			57.02.02.01-Coaxial cables	
			57.02.02.02-Wire harnesses	
			57.02.02.03-Top bulkhead	
			57.02.02.04-Bottom bulkhead	
			57.02.02.05-AMB1 cables	
			57.02.02.06-Optical fiber cables	
			57.02.02.07-Air baffles	
			57.02.02.08-Power Supply Cutoff on Overtemperature	
			57.02.02.09-Analog rack mechanical assembly	
			57.02.02.10-PCB for analog rack voltage tester (ARTpcb)	
			57.02.02.11-Analog rack IFP voltage tester (ARTifp)	
			57.02.02.12-Analog rack LO2/FLOOG voltage tester (ARTlo2)	
			57.02.02.13-Analog rack LORR voltage tester (ARTlorr)	
		57.02.03-Line Length Correction rack (LLCR) assembly		
			57.02.03.00-General	
			57.02.03.01-Rack RF cabling/distribution	
			57.02.03.02-Rack AC power panel assembly	
			57.02.03.03-Rack monitor and control (M&C) wiring	
			57.02.03.04-Optical fiber cables (intra-rack only)	
			57.02.03.05-LLC rack CAN adapter	



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			57.02.04.01-Analog bin assembly	
		57.02.06-Analog shielded module housing		
			57.02.06.00-General	
			57.02.06.01-Analog module assembly	
		57.02.07-DTS bin in digital rack		
			57.02.07.00-General	
			57.02.07.01-DTS bin assembly	
		57.02.08-Sub-Array Switch rack (SASR) assembly		
			57.02.08.00-General	
			57.02.08.01-Rack RF cabling/distribution	
			57.02.08.02-Rack DC and AC wiring	
			57.02.08.03-Rack monitor and control (M&C) wiring	
			57.02.08.04-Optical fiber cables (intra-rack only)	
			57.02.08.05-Fiber Bragg Grating (FBG) Filter Tray Assembly for CLOA2	
		57.02.09-Photonic Reference Distribution rack (PRDR) assembly		
			57.02.09.00-General	
			57.02.09.01-Rack RF cabling/distribution	
			57.02.09.02-Rack DC and AC wiring	
			57.02.09.03-Rack monitor and control (M&C) wiring	
			57.02.09.04-Optical fiber cables (intra-rack only)	
		57.02.10-Photonic reference rack (PRR) assembly		
			57.02.10.00-General	
			57.02.10.01-Rack RF cabling/distribution	
			57.02.10.02-Rack DC and AC wiring	
			57.02.10.03-Rack monitor and control (M&C) wiring	



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		57.02.11-Central variable reference rack (CVRR) assembly		
			57.02.11.00-General	
			57.02.11.01-Rack RF cabling/distribution	
			57.02.11.02-Rack DC and AC wiring	
			57.02.11.03-Rack monitor and control (M&C) wiring	
			57.02.11.04-Optical fiber cables (intra-rack only)	
		57.02.12-Hydrogen maser rack (HMR) assembly		
			57.02.12.00-General	
			57.02.12.01-Rack RF cabling/distribution	
			57.02.12.02-Rack DC and AC wiring	
			57.02.12.03-Rack monitor and control (M&C) wiring	
			57.02.12.04-Optical fiber cables (intra-rack only)	
		57.02.13-Phase drift test set rack (PTSR) assembly		
			57.02.13.00-General	
			57.02.13.01-Rack RF cabling/distribution	
			57.02.13.02-Rack DC and AC wiring	
			57.02.13.03-Rack monitor and control (M&C) wiring	
			57.02.13.04-Optical fiber cables (intra-rack only)	
			57.02.13.05 Wavelength discriminator unit	
		57.02.20-Line Length Correction (LLC) subrack assembly		
			57.02.20.00-General	
			57.02.20.01-Subrack bin	
			57.02.20.02-Subrack backplane assembly	
		57.02.21-Sub-Array Switch (SAS) subrack assembly		
			57.02.21.00-General	
			57.02.21.01-Subrack bin	



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		57.02.22-Laser Synthesizer bin assembly in PRR1 and PRR2		
			57.02.22.00-General	
			57.02.22.01-LS bin mechanical assembly	
		57.02.23-ML bin assembly in PRR1 and PRR2		
			57.02.23.00-General	
			57.02.23.01-ML bin mechanical assembly	
			57.02.23.01-	
		57.02.24-ML power supply bin assembly in PRR1 and PRR2		
			57.02.24.00-General	
			57.02.24.01-ML power supply bin mechanical assembly	
		57.02.25-LLC power supply bin assembly in LLCR-B1, LLCR-B2 and LLCR-ACA		
			57.02.25.00-General	
			57.02.25.01-PSLLC bin mechanical assembly	
		57.02.26-SAS power supply bin assembly in PRDR		
			57.02.26.00-General	
			57.02.26.01-PSSAS bin mechanical assembly	
		57.02.27-CRG/CRD/PS bin assembly		
			57.02.27.00-General	
			57.02.27.01-CRG/CRD/PS bin mechanical assembly	
		57.02.28-Single Dish Timing Rack (SDTR) mechanical assembly		
			57.02.28.00-General	
	57.03-Power Supplies PS			
		57.03.00-General		
			57.03.00.00-General	
		57.03.01-230 VAC-48VDC power supply in digital rack PSD LRU		
			57.03.01.00-General	



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			57.03.01.02-PSD LRU mechanical assembly	
		57.03.03-230 VAC penta-VDC power supply in analog rack PSA LRU		
			57.03.03.00-General	
			57.03.03.01-Monitor interface RS232/AMBSI-1	
			57.03.03.02-PSA mechanical assembly	
			57.03.03.03-PSA auto-relay subassembly	
		57.03.04-Penta-VDC distributor PSAD LRU		
			57.03.04.00-General	
			57.03.04.01-Circuit board	
			57.03.04.02-PSAD LRU mechanical assembly	
		57.03.05-Voltage regulator assemblies		
			57.03.05.00-General	
			57.03.05.01-+15V 3A Regulator VREG+15	
			57.03.05.02-+5V 3A Regulator VREG+5	
			57.03.05.03--15V 1A Regulator VREG-15	
			57.03.05.04-+/-15V 1A Sequenced Regulator VREG15SEQ	
			57.03.05.05--5V 1A Regulator VREG-5	
		57.03.06-AMB connector adapter board		
			57.03.06.00-General	
		57.03.07-Power supply for LLCs, PSLLC LRU		
			57.03.07.00-PSLLC General	
			57.03.07.01-Monitor interface RS232/AMBSI-1	
			57.03.07.02-PSLLC mechanical assembly	
		57.03.08-Power supply distributor for LLC (PSLLCD)		
			57.03.08.00-PSLLCD General	
			57.03.08.01-PSLLCD circuit board	
			57.03.08.02-PSLLCD mechanical assembly	



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Level 1	Level 2	Level 3	Level 4	Level 5
		57.03.09-Power supply bench test stand (PSTS)		
			57.03.09.00-PSTS General	
			57.03.09.01-PSTS Analog bin	
			57.03.09.02-PSTS test rack	
		57.03.10-Power supply for SAS (PSSAS) LRU		
			57.03.10.00-PSSAS General	
			57.03.10.01-Monitor interface RS232/AMBSI-1	
			57.03.10.02-PSSAS mechanical assembly	
		57.03.11-Power supply distributor for SAS (PSSASD)		
			57.03.11.00-PSSASD General	
			57.03.11.01-PSSASD circuit board	
			57.03.11.02-PSSASD mechanical assembly	
		57.03.12-LLC ORing module		
			57.03.12.00-General	
			57.03.12.01-LLC ORing circuit board	
			57.03.12.02-LLC ORing module mechanical assembly	
		57.03.13-SAS ORing module		
			57.03.13.00-General	
			57.03.13.01-SAS ORing circuit board	
			57.03.13.02-SAS ORing module mechanical assembly	
		57.03.14-Power supply for Central LO PSCR LRU		
			57.03.14.00-General	
			57.03.14.01-Monitor interface RS232/AMBSI-1	
			57.03.14.02-PSCR LRU mechanical assembly	
		57.03.15-Power Supply Unit MC board		
			57.03.15.00-General	
		57.03.16-Power supply for PTSR		
			57.03.16.00-General	



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	57.04-Cables external to racks			
		57.04.00- General		
			57.04.00.00- General	
		57.04.01-Cables between analog rack and digital rack		
			57.04.01.00- General	
			57.04.01.01-Coax CA2, 125 MHz and 2-4 GHz to digital rack	
			57.04.01.02-Cable LORR to ABM, TE 48 msec RS422	
			57.04.01.03-Cable LORR to DGCK, TE 48 msec LVDS	
		57.04.02-Cables between analog rack and other IPT items		
			57.04.02.00- General	
			57.04.02.01-Coax CA1, to front end and water vapor radiometer (WVR)	
			57.04.02.02-Coax LORR to LPR, 25 MHz	
		57.04.03-Cables between BEND and Antenna		
			57.04.03.00- General	
			57.04.03.01-230 VAC cable to analog rack	
			57.04.03.02-LO fiber cable to pedestal splice box S1	
		57.04.04-Cables between digital rack and Antenna		
			57.04.04.00- General	
			57.04.04.01-230VAC cable to digital rack	
			57.04.04.02-DTS fiber cable to antenna pad vault	
		57.04.05-Cables between central LO racks and AOS-TB		
			57.04.05.00- General	
			57.04.05.01-230VAC cable to central LO racks	
		57.04.06-Cables between central LO racks and correlator		
			57.04.06.00- General	
			57.04.06.01-Coaxial cable CRG to ALMA-B correlator, 125 MHz	



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			57.04.06.02-Coaxial cable CRG to ACA correlator, 125 MHz	
		57.04.07-Interrack CLOA cables		
			57.04.07.00-General	
			57.04.07.01-Coaxial cable to CRD, 5MHz	
			57.04.07.02-Cable to ARTM, monitor	
		57.04.08-Cables between Central LO racks and Computing equipment		
			57.04.08.00-General	
58-Back End Antenna Article test stand AAT				
	58.00-General			
		58.00.00-General		
			58.00.00.00-General	
	58.02-AAT rack and associated metal			
		58.02.00-General		
			58.02.00.00-General	
	58.03-AAT pseudo FE			
		58.03.00-General		
			58.03.00.00-General	
	58.07-AAT 48VDC power supply and distribution			
		58.07.00-General		
			58.07.00.00-General	
60-64 antenna correlator				
	60.00-General			
		60.00.00-General		
			60.00.00.00-General	
	60.01-Station rack assembly			
		60.01.00-General		
			60.01.00.00-General	
		60.01.01-Station rack		
			60.01.01.00-General	
		60.01.02-Station card		
			60.01.02.00-General	
		60.01.03-FIR filter card		
			60.01.03.00-General	
		60.01.04-6U-bin power supply card		
			60.01.04.00-General	
		60.01.05-Station control card		



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			60.01.05.00-General	
		60.01.06-Distribution paddleboard type1		
			60.01.06.00-General	
		60.01.07-Tunable Filter Board		
			60.01.07.00-General	
			60.01.07.01-Prototype Card	
			60.01.07.02-Delay Implementation	
			60.01.07.03-FIR Implementation	
			60.01.07.05-Production Card	
		60.01.08-Fan Speed Card		
	60.02-Correlator rack assembly			
		60.02.00-General		
			60.02.00.00-General	
		60.02.01-Correlator rack		
			60.02.01.00-General	
		60.02.02-Correlator Card		
			60.02.02.00-General	
		60.02.03-Long term accumulator card		
			60.02.03.00-General	
		60.02.04-Final adder card		
			60.02.04.00-General	
		60.02.05-Quadrant control card		
			60.02.05.00-General	
		60.02.06-Distribution paddleboard type2		
			60.02.06.00-General	
		60.02.07-9U-bin powersupply card		
			60.02.07.00-General	
		60.02.08-Mezzanine power supply card		
			60.02.08.00-General	
	60.03-Data Port Interface assembly			
		60.03.00-General		
			60.03.00.00-General	
		60.03.01-DPI interface box		
			60.03.01.00-General	
		60.03.02-DPI card		
			60.03.02.00-General	
		60.03.03-DPI power supply		
			60.03.03.00-General	



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	60.04-Power rack assembly			
		60.04.00-General		
			60.04.00.00-General	
		60.04.01-Power rack		
			60.04.01.00-General	
		60.04.02-Power supplies		
			60.04.02.00-General	
	60.05-Cables			
		60.05.00-General		
			60.05.00.00-General	
		60.05.01-Data		
			60.05.01.00-General	
		60.05.02-Communications		
			60.05.02.00-General	
		60.05.03-Power		
			60.05.03.00-General	
		60.05.04-Clock and control		
			60.05.04.00-General	
	60.06-Test facility			
		60.06.00-General		
			60.06.00.00-General	
		60.06.01-Station card test fixture		
			60.06.01.00-General	
		60.06.02-CC/LTA test fixture		
			60.06.02.00-General	
		60.06.03-SCC test fixture		
			60.06.03.00-General	
61-Two antenna correlator				
	61.00-General			
		61.00.00-General		
			61.00.00.00-General	
	61.01-Two antenna correlator rack assembly			
		61.01.00-General		
			61.01.00.00-General	
		61.01.01-Two antenna correlator rack		
			61.01.01.00-General	
		61.01.02-Station card		
			61.01.02.00-General	
		61.01.03-FIR filter card		



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			61.01.03.00-General	
		61.01.04-6U-bin power supply card		
			61.01.04.00-General	
		61.01.05-Station control card		
			61.01.05.00-General	
		61.01.06-Distribution paddleboard type1		
			61.01.06.00-General	
		61.01.07-Correlator Card		
			61.01.07.00-General	
		61.01.08-Long term accumulator card		
			61.01.08.00-General	
		61.01.09-Quadrant control card		
			61.01.09.00-General	
		61.01.10-Distribution paddleboard type2		
			61.01.10.00-General	
		61.01.11-9U-bin powersupply card		
			61.01.11.00-General	
		61.01.12-Mezzanine power supply card		
			61.01.12.00-General	
		61.01.13-Power supplies		
			61.01.13.00-General	
		61.01.14-Final adder card		
			61.01.14.00-General	
	61.02-Data Port Interface assembly			
		61.02.00-General		
			61.02.00.00-General	
		61.02.01-DPI interface box		
			61.02.01.00-General	
		61.02.02-DPI card		
			61.02.02.00-General	
		61.02.03-DPI power supply		
			61.02.03.00-General	
	61.03-Cables			
		61.03.00-General		
			61.03.00.00-General	
		61.03.01-Data		
			61.03.01.00-General	
		61.03.02-Communications		



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			61.03.02.00-General	
		61.03.03-Power		
			61.03.03.00-General	
		61.03.04-Clock and control		
			61.03.04.00-General	
62-ACA Correlator				
	62.00-General			
		62.00.00-General		
			62.00.00.00-General	
	62.10-DFP (DTS receiver and FFT Processor) module (LRU)			
		62.10.00-General		
			62.10.00.00-General	
		62.10.01-DTS-R (Data Transmission System Receiver) card		
			62.10.01.00-General	
				62.10.01.00-000-001 IF#0 DFP#0 DTS#8 62.10.01.00-000-002 IF#0 DTS#9 62.10.01.00-000-003 IF#0 DFP#1 DTS#8 62.10.01.00-000-004 IF#2 DFP#3 DTS#8 62.10.01.00-000-005 IF#0 DFP#2 DTS#8 62.10.01.00-000-006 IF#0 DTS#9 62.10.01.00-000-007 SPARE Card DTS 62.10.01.00-000-008 SPARE Card DTS 62.10.01.00-000-009 IF#0 DFP#4 DTS#8 62.10.01.00-000-010 IF#0 DTS#9 62.10.01.00-000-011 IF#0 DFP#5 DTS#8 62.10.01.00-000-012 IF#0 DTS#9 62.10.01.00-000-013 IF#0 DFP#6 DTS#8 62.10.01.00-000-014 IF#0 DTS#9 62.10.01.00-000-015 IF#0 DFP#7 DTS#8 62.10.01.00-000-016 IF#0 DTS#9 62.10.01.00-000-017 IF#1 DFP#0 DTS#8 62.10.01.00-000-018 IF#1 DTS#9 62.10.01.00-000-019 MCI#SPARE1 DTS#8 62.10.01.00-000-020 IF#2 DTS#9 62.10.01.00-000-021 IF#3 DFP#2 DTS#8 62.10.01.00-000-022 IF#3



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		62.10.02-FFT (Fast Fourier Transform) card		
			62.10.02.00-General	
				62.10.02.00-000-001 IF#0 DFP#0 FFT#0 62.10.02.00-000-002 IF#0 DFP#0 FFT#1 62.10.02.00-000-003 Spare MCI#SPARE1 FFT#0 62.10.02.00-000-004 IF#0 DFP#0 FFT#3 62.10.02.00-000-005 IF#0 DFP#0 FFT#4 62.10.02.00-000-006 IF#0 DFP#0 FFT#5 62.10.02.00-000-007 Spare DFP#SPARE1 FFT#1 62.10.02.00-000-008 IF#0 DFP#0 FFT#7 62.10.02.00-000-009 IF#1 DFP#1 FFT#2 62.10.02.00-000-010 IF#0 DFP#1 FFT#1 62.10.02.00-000-011 IF#0 DFP#1 FFT#2 62.10.02.00-000-012 IF#0 DFP#1 FFT#0 62.10.02.00-000-013 IF#0 DFP#7 FFT#1 62.10.02.00-000-014 IF#0 DFP#1 FFT#5 62.10.02.00-000-015 IF#0 DFP#1 FFT#6 62.10.02.00-000-016 IF#0 DFP#1 FFT#7 62.10.02.00-000-017 IF#1 DFP#0 FFT#2 62.10.02.00-000-018 IF#0 DFP#2 FFT#1 62.10.02.00-000-019 IF#0



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				DFP#5 FFT#4 62.10.02.00-000-092 IF#1 DFP#4 FFT#6 62.10.02.00-000-093 IF#1 DFP#5 FFT#0 62.10.02.00-000-094 Spare DFP#SPARE1 FFT#0 62.10.02.00-000-095 IF#1 DFP#3 FFT#6 62.10.02.00-000-096 IF#1 DFP#3 FFT#7 62.10.02.00-000-097 Spare MCI#SPARE1 FFT#7 62.10.02.00-000-098 IF#1 DFP#4 FFT#1 62.10.02.00-000-099 IF#1 DFP#4 FFT#2 62.10.02.00-000-100 IF#1 DFP#4 FFT#3 62.10.02.00-000-101 IF#1 DFP#4 FFT#4 62.10.02.00-000-102 IF#1 DFP#4 FFT#5 62.10.02.00-000-103 Spare DFP#SPARE1 FFT#7 62.10.02.00-000-104 Spare DFP#SPARE2 FFT#7 62.10.02.00-000-105 IF#1 DFP#7 FFT#2 62.10.02.00-000-106 IF#1 DFP#5 FFT#1 62.10.02.00-000-107 Spare MCI#SPARE1 FFT#6 62.10.02.00-000-108 IF#1 DFP#5 FFT#3 62.10.02.00-000-109 IF#2 DFP#6 FFT#0 62.10.02.00-000-110 IF#2 DFP#6 FFT#1 62.10.02.00-000-111 IF#1 DFP#5 FFT#6 62.10.02.00-000-112 IF#1 DFP#5 FFT#7 62.10.02.00-000-113 IF#3 DFP#5 FFT#2 62.10.02.00-000-114 Spare DFP#SPARE2 FFT#2 62.10.02.00-000-115 IF#2 DFP#6 FFT#2 62.10.02.00-000-116 IF#2 DFP#6 FFT#3 62.10.02.00-000-117 IF#2 DFP#6 FFT#4 62.10.02.00-000-118 IF#1 DFP#7 FFT#0 62.10.02.00-000-119 IF#2 DFP#6 FFT#6 62.10.02.00-000-120 IF#2 DFP#6 FFT#7 62.10.02.00-000-121 Spare DFP#SPARE2 FFT#4 62.10.02.00-000-122 IF#1 DFP#7 FFT#1 62.10.02.00-000-123 IF#2 DFP#4 FFT#5 62.10.02.00-000-124 IF#1 DFP#7 FFT#3 62.10.02.00-000-125 IF#2 DFP#0 FFT#3 62.10.02.00-000-126 IF#1 DFP#4 FFT#7 62.10.02.00-000-127 IF#1



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				DFP#7 FFT#6 62.10.02.00-000-128 IF#1 DFP#7 FFT#7 62.10.02.00-000-129 IF#2 DFP#0 FFT#0 62.10.02.00-000-130 Spare DFP#SPARE1 FFT#3 62.10.02.00-000-131 IF#2 DFP#0 FFT#2 62.10.02.00-000-132 IF#1 DFP#6 FFT#1 62.10.02.00-000-133 IF#0 DFP#3 FFT#4 62.10.02.00-000-134 IF#2 DFP#0 FFT#5 62.10.02.00-000-135 IF#2 DFP#0 FFT#6 62.10.02.00-000-136 IF#0 DFP#3 FFT#0 62.10.02.00-000-137 Spare DFP#SPARE1 FFT#2 62.10.02.00-000-138 IF#1 DFP#1 FFT#1 62.10.02.00-000-139 Spare CIP#SPARE1 FFT#1 62.10.02.00-000-140 IF#1 DFP#1 FFT#3 62.10.02.00-000-141 IF#1 DFP#1 FFT#4 62.10.02.00-000-142 IF#1 DFP#1 FFT#5 62.10.02.00-000-143 IF#1 DFP#1 FFT#6 62.10.02.00-000-144 IF#1 DFP#1 FFT#7 62.10.02.00-000-145 IF#1 DFP#2 FFT#0 62.10.02.00-000-146 IF#1 DFP#2 FFT#1 62.10.02.00-000-147 IF#1 DFP#2 FFT#2 62.10.02.00-000-148 IF#1 DFP#2 FFT#3 62.10.02.00-000-149 IF#0 DFP#4 FFT#0 62.10.02.00-000-150 IF#1 DFP#2 FFT#5 62.10.02.00-000-151 IF#2 DFP#1 FFT#1 62.10.02.00-000-152 IF#1 DFP#2 FFT#7 62.10.02.00-000-153 IF#2 DFP#1 FFT#4 62.10.02.00-000-154 IF#0 DFP#3 FFT#1 62.10.02.00-000-155 IF#2 DFP#1 FFT#3 2.10.02.00-000-156 IF#0 DFP#3 FFT#3 62.10.02.00-000-157 IF#1 DFP#3 FFT#3 62.10.02.00-000-158 IF#0 DFP#3 FFT#5 62.10.02.00-000-159 IF#0 DFP#3 FFT#6 62.10.02.00-000-160 Spare Card FFT 62.10.02.00-000-161 IF#2 DFP#4 FFT#0 62.10.02.00-000-162 IF#1 DFP#3 FFT#4 62.10.02.00-000-163 IF#2



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				DFP#6 FFT#5 62.10.02.00-000-164 IF#2 DFP#4 FFT#3 62.10.02.00-000-165 IF#2 DFP#4 FFT#4 62.10.02.00-000-166 IF#1 DFP#3 FFT#0 62.10.02.00-000-167 IF#2 DFP#4 FFT#6 62.10.02.00-000-168 IF#2 DFP#4 FFT#7 62.10.02.00-000-169 IF#2 DFP#5 FFT#0 62.10.02.00-000-170 IF#2 DFP#5 FFT#1 62.10.02.00-000-171 IF#2 DFP#5 FFT#2 62.10.02.00-000-172 IF#2 DFP#5 FFT#3 62.10.02.00-000-173 IF#2 DFP#5 FFT#4 62.10.02.00-000-174 Spare Card FFT 62.10.02.00-000-175 IF#2 DFP#5 FFT#6 62.10.02.00-000-176 IF#2 DFP#5 FFT#7 62.10.02.00-000-177 IF#1 DFP#6 FFT#0 62.10.02.00-000-178 IF#1 DFP#5 FFT#5 62.10.02.00-000-179 Spare DFP#SPARE2 FFT#0 62.10.02.00-000-180 IF#1 DFP#4 FFT#0 62.10.02.00-000-181 IF#1 DFP#7 FFT#4 62.10.02.00-000-182 Spare Card FFT 62.10.02.00-000-183 IF#1 DFP#5 FFT#2 62.10.02.00-000-184 IF#3 DFP#4 FFT#0 62.10.02.00-000-185 IF#2 DFP#7 FFT#0 62.10.02.00-000-186 IF#2 DFP#7 FFT#1 62.10.02.00-000-187 IF#2 DFP#7 FFT#2 62.10.02.00-000-188 Spare DFP#SPARE1 FFT#8 62.10.02.00-000-189 IF#2 DFP#7 FFT#4 62.10.02.00-000-190 IF#2 DFP#7 FFT#5 62.10.02.00-000-191 IF#2 DFP#7 FFT#6 62.10.02.00-000-192 Spare MCI#SPARE1 FFT#5 62.10.02.00-000-193 IF#3 DFP#0 FFT#0 62.10.02.00-000-194 IF#3 DFP#0 FFT#1 62.10.02.00-000-195 IF#3 DFP#0 FFT#2 62.10.02.00-000-196 IF#0 DFP#3 FFT#2 62.10.02.00-000-197 IF#1 DFP#6 FFT#7 62.10.02.00-000-198 Spare DFP#SPARE1 FFT#4 62.10.02.00-000-199 IF#3



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				DFP#0 FFT#5 62.10.02.00-000-200 IF#3 DFP#0 FFT#7 62.10.02.00-000-201 IF#2 DFP#5 FFT#5 62.10.02.00-000-202 IF#1 DFP#1 FFT#0 62.10.02.00-000-203 IF#3 DFP#1 FFT#2 62.10.02.00-000-204 IF#3 DFP#1 FFT#3 62.10.02.00-000-205 IF#2 DFP#0 FFT#4 62.10.02.00-000-206 IF#3 DFP#1 FFT#5 62.10.02.00-000-207 IF#2 DFP#0 FFT#7 62.10.02.00-000-208 IF#3 DFP#1 FFT#7 62.10.02.00-000-209 IF#2 DFP#2 FFT#0 62.10.02.00-000-210 IF#2 DFP#2 FFT#1 62.10.02.00-000-211 IF#2 DFP#2 FFT#2 62.10.02.00-000-212 IF#2 DFP#2 FFT#3 62.10.02.00-000-213 IF#2 DFP#2 FFT#4 62.10.02.00-000-214 IF#2 DFP#2 FFT#5 62.10.02.00-000-215 IF#2 DFP#2 FFT#6 62.10.02.00-000-216 IF#2 DFP#2 FFT#7 62.10.02.00-000-217 IF#3 DFP#3 FFT#0 62.10.02.00-000-218 IF#3 DFP#3 FFT#1 62.10.02.00-000-219 IF#3 DFP#3 FFT#2 62.10.02.00-000-220 IF#0 DFP#1 FFT#4 62.10.02.00-000-221 IF#3 DFP#3 FFT#4 62.10.02.00-000-222 IF#3 DFP#3 FFT#5 62.10.02.00-000-223 Spare DFP#SPARE1 FFT#6 62.10.02.00-000-224 IF#3 DFP#3 FFT#7 62.10.02.00-000-225 IF#1 DFP#2 FFT#6 62.10.02.00-000-226 IF#0 DFP#3 FFT#7 62.10.02.00-000-227 IF#3 DFP#4 FFT#2 62.10.02.00-000-228 IF#3 DFP#4 FFT#3 62.10.02.00-000-229 IF#3 DFP#4 FFT#4 62.10.02.00-000-230 IF#3 DFP#4 FFT#5 62.10.02.00-000-231 Spare DFP#SPARE2 FFT#5 62.10.02.00-000-232 IF#3 DFP#4 FFT#7 62.10.02.00-000-233 IF#3 DFP#5 FFT#0 62.10.02.00-000-234 IF#3 DFP#5 FFT#1 62.10.02.00-000-235 IF#0



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				DFP#1 FFT#3 62.10.02.00-000-236 IF#3 DFP#5 FFT#3 62.10.02.00-000-237 IF#3 DFP#5 FFT#4 62.10.02.00-000-238 IF#3 DFP#5 FFT#5 62.10.02.00-000-239 IF#3 DFP#5 FFT#6 62.10.02.00-000-240 IF#3 DFP#5 FFT#7 62.10.02.00-000-241 IF#3 DFP#6 FFT#0 62.10.02.00-000-242 IF#3 DFP#6 FFT#1 62.10.02.00-000-243 IF#3 DFP#6 FFT#2 62.10.02.00-000-244 Spare DFP#SPARE2 FFT#6 62.10.02.00-000-245 IF#3 DFP#6 FFT#4 62.10.02.00-000-246 IF#3 DFP#6 FFT#5 62.10.02.00-000-247 IF#2 DFP#4 FFT#2 62.10.02.00-000-248 IF#2 DFP#4 FFT#1 62.10.02.00-000-249 IF#3 DFP#7 FFT#0 62.10.02.00-000-250 IF#3 DFP#7 FFT#1 62.10.02.00-000-251 IF#3 DFP#7 FFT#2 62.10.02.00-000-252 IF#3 DFP#7 FFT#3 62.10.02.00-000-253 Spare DFP#SPARE2 FFT#1 62.10.02.00-000-254 IF#3 DFP#7 FFT#5 62.10.02.00-000-255 IF#2 DFP#1 FFT#6 62.10.02.00-000-256 IF#2 DFP#1 FFT#5 62.10.02.00-000-257 IF#3 DFP#7 FFT#4 62.10.02.00-000-258 IF#2 DFP#3 FFT#4 62.10.02.00-000-259 IF#2 DFP#3 FFT#7 62.10.02.00-000-260 IF#3 DFP#7 FFT#6 62.10.02.00-000-261 IF#0 DFP#4 FFT#5 62.10.02.00-000-262 IF#0 DFP#4 FFT#7 62.10.02.00-000-263 IF#3 DFP#0 FFT#4 62.10.02.00-000-264 IF#3 DFP#0 FFT#3 62.10.02.00-000-265 IF#3 DFP#7 FFT#7 62.10.02.00-000-266 IF#0 DFP#0 FFT#2 62.10.02.00-000-267 IF#0 DFP#0 FFT#6 62.10.02.00-000-268 IF#1 DFP#2 FFT#4 62.10.02.00-000-269 Spare CIP#SPARE1 FFT#7 62.10.02.00-000-270 IF#0 DFP#2 FFT#0 62.10.02.00-000-271 IF#0



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				DFP#2 FFT#3 62.10.02.00-000-272 IF#3 DFP#6 FFT#7 62.10.02.00-000-273 IF#3 DFP#6 FFT#3 62.10.02.00-000-274 IF#1 DFP#7 FFT#5 62.10.02.00-000-275 IF#3 DFP#3 FFT#3 62.10.02.00-000-276 Spare DFP#SPARE2 FFT#3 62.10.02.00-000-277 IF#3 DFP#1 FFT#6 62.10.02.00-000-278 IF#2 DFP#0 FFT#1 62.10.02.00-000-279 IF#0 DFP#5 FFT#3 62.10.02.00-000-280 Spare DFP#SPARE1 FFT#9 62.10.02.00-000-281 IF#3 DFP#6 FFT#6 62.10.02.00-000-282 IF#3 DFP#0 FFT#6 62.10.02.00-000-283 IF#3 DFP#1 FFT#1 62.10.02.00-000-284 IF#3 DFP#4 FFT#6 62.10.02.00-000-285 IF#3 DFP#1 FFT#4 62.10.02.00-000-286 IF#3 DFP#3 FFT#6 62.10.02.00-000-287 IF#3 DFP#1 FFT#0 62.10.02.00-000-288 IF#3 DFP#4 FFT#1
		62.10.31-DPF module box		
			62.10.31.00-General	
				62.10.31.00-000-001 IF#0 DFP#0 62.10.31.00-000-002 IF#0 DFP#1 62.10.31.00-000-003 IF#0 DFP#2 62.10.31.00-000-004 IF#2 DFP#3 62.10.31.00-000-005 IF#0 DFP#4 62.10.31.00-000-006 IF#0 DFP#5 62.10.31.00-000-007 IF#0 DFP#6 62.10.31.00-000-008 IF#0 DFP#7 62.10.31.00-000-009 IF#1 DFP#0 62.10.31.00-000-010 IF#2 DFP#1 62.10.31.00-000-011 IF#3 DFP#2 62.10.31.00-000-012 IF#1 DFP#3 62.10.31.00-000-013 IF#1 DFP#4 62.10.31.00-000-014 IF#1 DFP#5 62.10.31.00-000-015 IF#2 DFP#6 62.10.31.00-000-016 IF#1 DFP#7 62.10.31.00-000-017 IF#2



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				DFP#0 62.10.31.00-000-018 IF#1DFP#1 62.10.31.00-000-019 IF#1 DFP#2 62.10.31.00-000-020 IF#0 DFP#3 62.10.31.00-000-021 IF#2 DFP#4 62.10.31.00-000-022 IF#2 DFP#5 62.10.31.00-000-023 IF#1 DFP#6 62.10.31.00-000-024 IF#2 DFP#7 62.10.31.00-000-025 IF#3 DFP#0 62.10.31.00-000-026 IF#3 DFP#1 62.10.31.00-000-027 IF#2 DFP#2 62.10.31.00-000-028 IF#3 DFP#3 62.10.31.00-000-029 IF#3 DFP#4 62.10.31.00-000-030 IF#3 DFP#5 62.10.31.00-000-031 IF#3 DFP#6 62.10.31.00-000-032 IF#3 DFP#7 62.10.31.00-000-033 保守 DFP#SPR1 62.10.31.00-000-034 保守 DFP#SPR2
	62.15-CIP (Correlation and Integration Processor) module (LRU)			
		62.15.00-General		
			62.15.00.00-General	
		62.15.01-CIP (Correlation and Integration Processor) card		
			62.15.01.00-General	
				62.15.01.00-000-001 IF#0 CIP#0 CIP#0 62.15.01.00-000-002 IF#0 CIP#0 CIP#1 62.15.01.00-000-003 IF#0 CIP#0 CIP#2 62.15.01.00-000-004 IF#0 CIP#0 CIP#3 62.15.01.00-000-005 IF#2 CIP#0 CIP#7 62.15.01.00-000-006 IF#0 CIP#0 CIP#5 62.15.01.00-000-007 IF#0 CIP#0 CIP#6 62.15.01.00-000-008 IF#0 CIP#0 CIP#7 62.15.01.00-000-009 IF#0 CIP#1 CIP#0 62.15.01.00-000-010 IF#0 CIP#1 CIP#1 62.15.01.00-000-011 IF#0 CIP#1 CIP#2 62.15.01.00-000-012 IF#0



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				CIP#1 CIP#3 62.15.01.00-000-013 IF#0 CIP#1 CIP#4 62.15.01.00-000-014 IF#0 CIP#1 CIP#5 62.15.01.00-000-015 IF#0 CIP#1 CIP#6 62.15.01.00-000-016 IF#0 CIP#1 CIP#7 62.15.01.00-000-017 CIP#SPARE1 CIP#6 62.15.01.00-000-018 IF#0 CIP#2 CIP#1 62.15.01.00-000-019 IF#1 CIP#1 CIP#5 62.15.01.00-000-020 IF#0 CIP#2 CIP#3 62.15.01.00-000-021 IF#0 CIP#2 CIP#4 62.15.01.00-000-022 IF#0 CIP#2 CIP#5 62.15.01.00-000-023 IF#0 CIP#2 CIP#6 62.15.01.00-000-024 IF#0 CIP#2 CIP#7 62.15.01.00-000-025 IF#0 CIP#3 CIP#0 62.15.01.00-000-026 IF#0 CIP#3 CIP#1 62.15.01.00-000-027 IF#0 CIP#3 CIP#2 62.15.01.00-000-028 IF#0 CIP#3 CIP#3 62.15.01.00-000-029 IF#0 CIP#3 CIP#4 62.15.01.00-000-030 IF#0 CIP#3 CIP#5 62.15.01.00-000-031 IF#0 CIP#3 CIP#6 62.15.01.00-000-032 IF#0 CIP#3 CIP#7 62.15.01.00-000-033 IF#1 CIP#0 CIP#0 62.15.01.00-000-034 IF#1 CIP#0 CIP#1 62.15.01.00-000-035 CIP#SPARE2 CIP#4 62.15.01.00-000-036 CIP#SPARE2 CIP#0 62.15.01.00-000-037 IF#1 CIP#0 CIP#4 62.15.01.00-000-038 IF#1 CIP#0 CIP#5 62.15.01.00-000-039 IF#1 CIP#0 CIP#6 62.15.01.00-000-040 IF#1 CIP#0 CIP#7 62.15.01.00-000-041 IF#2 CIP#1 CIP#0 62.15.01.00-000-042 IF#2 CIP#1 CIP#1 62.15.01.00-000-043 IF#2 CIP#1 CIP#2 62.15.01.00-000-044 IF#2 CIP#1 CIP#3 62.15.01.00-000-045 IF#2 CIP#1 CIP#4 62.15.01.00-000-046 IF#2 CIP#1 CIP#5 62.15.01.00-000-047 IF#2 CIP#1 CIP#6 62.15.01.00-000-048 IF#2



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				CIP#1 CIP#7 62.15.01.00-000-049 IF#1 CIP#2 CIP#0 62.15.01.00-000-050 IF#1 CIP#2 CIP#1 62.15.01.00-000-051 IF#1 CIP#2 CIP#2 62.15.01.00-000-052 IF#1 CIP#2 CIP#3 62.15.01.00-000-053 IF#1 CIP#2 CIP#4 62.15.01.00-000-054 IF#1 CIP#2 CIP#5 62.15.01.00-000-055 IF#1 CIP#2 CIP#6 62.15.01.00-000-056 IF#1 CIP#2 CIP#7 62.15.01.00-000-057 IF#1 CIP#3 CIP#0 62.15.01.00-000-058 IF#1 CIP#3 CIP#1 62.15.01.00-000-059 IF#1 CIP#3 CIP#2 62.15.01.00-000-060 IF#1 CIP#3 CIP#3 62.15.01.00-000-061 IF#1 CIP#3 CIP#4 62.15.01.00-000-062 IF#1 CIP#3 CIP#5 62.15.01.00-000-063 IF#1 CIP#3 CIP#6 62.15.01.00-000-064 IF#1 CIP#3 CIP#7 62.15.01.00-000-065 IF#2 CIP#0 CIP#0 62.15.01.00-000-066 IF#2 CIP#0 CIP#1 62.15.01.00-000-067 IF#2 CIP#0 CIP#2 62.15.01.00-000-068 IF#2 CIP#0 CIP#3 62.15.01.00-000-069 CIP#SPARE1 CIP#3 62.15.01.00-000-070 IF#2 CIP#0 CIP#5 62.15.01.00-000-071 IF#2 CIP#0 CIP#6 62.15.01.00-000-072 Spare Card CIP 62.15.01.00-000-073 IF#1 CIP#1 CIP#0 62.15.01.00-000-074 CIP#SPARE2 CIP#2 62.15.01.00-000-075 IF#1 CIP#1 CIP#2 62.15.01.00-000-076 IF#1 CIP#1 CIP#3 62.15.01.00-000-077 IF#1 CIP#1 CIP#4 62.15.01.00-000-078 CIP#SPARE2 CIP#5 62.15.01.00-000-079 CIP#SPARE1 CIP#0 62.15.01.00-000-080 IF#1 CIP#1 CIP#7 62.15.01.00-000-081 IF#2 CIP#2 CIP#0 62.15.01.00-000-082 IF#2 CIP#2 CIP#1 62.15.01.00-000-083 IF#2 CIP#2 CIP#2 62.15.01.00-000-084 IF#2



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				CIP#2 CIP#3 62.15.01.00-000-085 IF#2 CIP#2 CIP#4 62.15.01.00-000-086 IF#2 CIP#2 CIP#5 62.15.01.00-000-087 IF#2 CIP#2 CIP#6 62.15.01.00-000-088 IF#2 CIP#2 CIP#7 62.15.01.00-000-089 IF#2 CIP#3 CIP#0 62.15.01.00-000-090 IF#2 CIP#3 CIP#1 62.15.01.00-000-091 CIP#SPARE2 CIP#7 62.15.01.00-000-092 IF#2 CIP#3 CIP#3 62.15.01.00-000-093 IF#2 CIP#3 CIP#4 62.15.01.00-000-094 IF#2 CIP#3 CIP#5 62.15.01.00-000-095 IF#2 CIP#3 CIP#6 62.15.01.00-000-096 IF#2 CIP#3 CIP#7 62.15.01.00-000-097 IF#3 CIP#0 CIP#0 62.15.01.00-000-098 CIP#SPARE2 CIP#1 62.15.01.00-000-099 CIP#SPARE1 CIP#5 62.15.01.00-000-100 IF#3 CIP#0 CIP#3 62.15.01.00-000-101 IF#3 CIP#0 CIP#4 62.15.01.00-000-102 CIP#SPARE2 CIP#3 62.15.01.00-000-103 IF#3 CIP#0 CIP#6 62.15.01.00-000-104 IF#3 CIP#0 CIP#7 62.15.01.00-000-105 IF#3 CIP#0 CIP#1 62.15.01.00-000-106 IF#3 CIP#1 CIP#1 62.15.01.00-000-107 IF#3 CIP#1 CIP#2 62.15.01.00-000-108 IF#3 CIP#1 CIP#3 62.15.01.00-000-109 CIP#SPARE1 CIP#2 62.15.01.00-000-110 IF#1 CIP#1 CIP#1 62.15.01.00-000-111 IF#3 CIP#1 CIP#6 62.15.01.00-000-112 IF#3 CIP#1 CIP#7 62.15.01.00-000-113 Spare Card CIP 62.15.01.00-000-114 IF#3 CIP#2 CIP#1 62.15.01.00-000-115 IF#3 CIP#2 CIP#2 62.15.01.00-000-116 IF#3 CIP#2 CIP#3 62.15.01.00-000-117 IF#3 CIP#2 CIP#4 62.15.01.00-000-118 IF#3 CIP#2 CIP#5 62.15.01.00-000-119 CIP#SPARE2 CIP#6 62.15.01.00-000-120 IF#3



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				CIP#2 CIP#7 62.15.01.00-000-121 IF#3 CIP#3 CIP#0 62.15.01.00-000-122 IF#3 CIP#3 CIP#1 62.15.01.00-000-123 IF#3 CIP#3 CIP#2 62.15.01.00-000-124 IF#3 CIP#3 CIP#3 62.15.01.00-000-125 IF#3 CIP#3 CIP#4 62.15.01.00-000-126 IF#3 CIP#3 CIP#5 62.15.01.00-000-127 CIP#SPARE1 CIP#4 62.15.01.00-000-128 IF#3 CIP#3 CIP#7 62.15.01.00-000-129 IF#0 CIP#0 CIP#4 62.15.01.00-000-130 IF#0 CIP#2 CIP#0 62.15.01.00-000-131 IF#0 CIP#2 CIP#2 62.15.01.00-000-132 IF#3 CIP#1 CIP#4 62.15.01.00-000-133 IF#3 CIP#0 CIP#2 62.15.01.00-000-134 IF#3 CIP#2 CIP#6 62.15.01.00-000-135 IF#3 CIP#2 CIP#0 62.15.01.00-000-136 IF#3 CIP#1 CIP#5 62.15.01.00-000-137 IF#3 CIP#3 CIP#6 62.15.01.00-000-138 IF#2 CIP#0 CIP#4 62.15.01.00-000-139 IF#1 CIP#1 CIP#6 62.15.01.00-000-140 IF#2 CIP#3 CIP#2 62.15.01.00-000-141 IF#3 CIP#1 CIP#0 62.15.01.00-000-142 IF#3 CIP#0 CIP#5 62.15.01.00-000-143 IF#1 CIP#0 CIP#3 62.15.01.00-000-144 IF#1 CIP#0 CIP#2
		62.15.02-MTI (Middle Term Integration) card		
			62.15.02.00-General	
				62.15.02.00-000-001 IF#0 CIP#0 MTI#8 62.15.02.00-000-002 IF#0 CIP#0 MTI#9 62.15.02.00-000-003 IF#0 CIP#1 MTI#8 62.15.02.00-000-004 IF#0 CIP#1 MTI#9 62.15.02.00-000-005 IF#0 CIP#2 MTI#8 62.15.02.00-000-006 IF#0 CIP#2 MTI#9 62.15.02.00-000-007 IF#0 CIP#3 MTI#8 62.15.02.00-000-008 IF#0 CIP#3 MTI#9 62.15.02.00-000-009 Spare Card MTI



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				62.15.02.00-000-010 IF#1 CIP#3 MTI#9 62.15.02.00-000-011 IF#2 CIP#1 MTI#8 62.15.02.00-000-012 IF#2 CIP#1 MTI#9 62.15.02.00-000-013 IF#1 CIP#2 MTI#8 62.15.02.00-000-014 IF#1 CIP#2 MTI#9 62.15.02.00-000-015 IF#1 CIP#3 MTI#8 62.15.02.00-000-016 CIP#SPARE2 MTI#9 62.15.02.00-000-017 IF#2 CIP#0 MTI#8 62.15.02.00-000-018 CIP#SPARE1 MTI#8 62.15.02.00-000-019 IF#2 CIP#0 MTI#9 62.15.02.00-000-020 CIP#SPARE2 MTI#8 62.15.02.00-000-021 IF#2 CIP#2 MTI#8 62.15.02.00-000-022 IF#2 CIP#2 MTI#9 62.15.02.00-000-023 IF#2 CIP#3 MTI#8 62.15.02.00-000-024 IF#2 CIP#3 MTI#9 62.15.02.00-000-025 IF#3 CIP#0 MTI#8 62.15.02.00-000-026 IF#3 CIP#0 MTI#9 62.15.02.00-000-027 IF#3 CIP#1 MTI#8 62.15.02.00-000-028 IF#1 CIP#1 MTI#9 62.15.02.00-000-029 IF#3 CIP#2 MTI#8 62.15.02.00-000-030 IF#3 CIP#2 MTI#9 62.15.02.00-000-031 IF#3 CIP#3 MTI#8 62.15.02.00-000-032 IF#3 CIP#3 MTI#9 62.15.02.00-000-033 IF#1 CIP#0 MTI#8 62.15.02.00-000-034 IF#1 CIP#0 MTI#9 62.15.02.00-000-035 IF#3 CIP#1 MTI#9 62.15.02.00-000-036 IF#1 CIP#1 MTI#8
		62.15.31-CIP module box		
			62.15.31.00-General	
				62.15.31.00-000-001 IF#0 CIP#0 62.15.31.00-000-002 IF#0 CIP#1 62.15.31.00-000-003 IF#0 CIP#2 62.15.31.00-000-004 IF#0 CIP#3 62.15.31.00-000-005 IF#1 CIP#0 62.15.31.00-000-006 IF#2 CIP#1 62.15.31.00-000-007 IF#1 CIP#2



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				62.15.31.00-000-008 IF#1 CIP#3 62.15.31.00-000-009 IF#2 CIP#0 62.15.31.00-000-010 IF#1 CIP#1 62.15.31.00-000-011 IF#2 CIP#2 62.15.31.00-000-012 IF#2 CIP#3 62.15.31.00-000-013 IF#3 CIP#0 62.15.31.00-000-014 IF#3 CIP#1 62.15.31.00-000-015 IF#3 CIP#2 62.15.31.00-000-016 IF#3 CIP#3 62.15.31.00-000-017 IF CIP#SPR1 62.15.31.00-000-018 IF CIP#SPR2
	62.20-MCI (Monitor and Control Interface) module (LRU)			
		62.20.00-General		
			62.20.00.00-General	
		62.20.01-Power Control card		
			62.20.01.00-General	
				62.20.01.00-000-001 IF#0 MCI#0 POWCON#5 62.20.01.00-000-002 IF#0 POWCON#6 62.20.01.00-000-003 IF#1 MCI#0 POWCON#5 62.20.01.00-000-004 IF#1 POWCON#6 62.20.01.00-000-005 IF#2 MCI#0 POWCON#5 62.20.01.00-000-006 IF#2 POWCON#6 62.20.01.00-000-007 IF#3 MCI#0 POWCON#5 62.20.01.00-000-008 IF#3 POWCON#6 62.20.01.00-000-009 Spare Card POWCON 62.20.01.00-000-010 Spare Card POWCON
		62.20.31-MCI module box		
			62.20.31.00-General	
				62.20.31.00-000-001 IF#0 MCI#0 62.20.31.00-000-002 IF#1 MCI#0 62.20.31.00-000-003 IF#2 MCI#0 62.20.31.00-000-004 IF#3 MCI#0 62.20.31.00-000-005 IF MCI#SPR1
	62.25-Common card/unit in the modules			
		62.25.00-General		



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			62.25.00.00-General	
		62.25.11-Module motherboard		
			62.25.11.00-General	
				62.25.11.00-000-001 IF#0 DFP#0 62.25.11.00-000-002 IF#0 DFP#1 62.25.11.00-000-003 IF#0 DFP#2 62.25.11.00-000-004 IF#2 DFP#3 62.25.11.00-000-005 IF#0 DFP#4 62.25.11.00-000-006 IF#0 DFP#5 62.25.11.00-000-007 IF#0 DFP#6 62.25.11.00-000-008 IF#0 DFP#7 62.25.11.00-000-009 IF#0 CIP#0 62.25.11.00-000-010 IF#0 CIP#1 62.25.11.00-000-011 IF#0 CIP#2 62.25.11.00-000-012 IF#0 CIP#3 62.25.11.00-000-013 IF#0 MCI#0 62.25.11.00-000-014 IF#1 DFP#0 62.25.11.00-000-015 IF#2 DFP#1 62.25.11.00-000-016 IF#3 DFP#2 62.25.11.00-000-017 IF#1 DFP#3 62.25.11.00-000-018 IF#1 DFP#4 62.25.11.00-000-019 IF#1 DFP#5 62.25.11.00-000-020 IF#2 DFP#6 62.25.11.00-000-021 IF#1 DFP#7 62.25.11.00-000-022 IF#1 CIP#0 62.25.11.00-000-023 IF#2 CIP#1 62.25.11.00-000-024 IF#1 CIP#2 62.25.11.00-000-025 IF#1 CIP#3 62.25.11.00-000-026 IF#1 MCI#0 62.25.11.00-000-027 IF#2 DFP#0 62.25.11.00-000-028 IF#1 DFP#1 62.25.11.00-000-029 IF#1 DFP#2 62.25.11.00-000-030 IF#0 DFP#3 62.25.11.00-000-031 IF#2 DFP#4 62.25.11.00-000-032 IF#2 DFP#5 62.25.11.00-000-033 IF#1 DFP#6



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				62.25.11.00-000-034 IF#2 DFP#7 62.25.11.00-000-035 IF#2 CIP#0 62.25.11.00-000-036 IF#1 CIP#1 62.25.11.00-000-037 IF#2 CIP#2 62.25.11.00-000-038 IF#2 CIP#3 62.25.11.00-000-039 IF#2 MCI#0 62.25.11.00-000-040 IF#3 DFP#0 62.25.11.00-000-041 IF#3 DFP#1 62.25.11.00-000-042 IF#2 DFP#2 62.25.11.00-000-043 IF#3 DFP#3 62.25.11.00-000-044 IF#3 DFP#4 62.25.11.00-000-045 IF#3 DFP#5 62.25.11.00-000-046 IF#3 DFP#6 62.25.11.00-000-047 IF#3 DFP#7 62.25.11.00-000-048 IF#3 CIP#0 62.25.11.00-000-049 IF#3 CIP#1 62.25.11.00-000-050 IF#3 CIP#2 62.25.11.00-000-051 IF#3 CIP#3 62.25.11.00-000-052 IF#3 MCI#0 62.25.11.00-000-053 IF#3 DFP#SPR1 62.25.11.00-000-054 IF#3 DFP#SPR2 62.25.11.00-000-055 IF#3 CIP#SPR1 62.25.11.00-000-056 IF#3 CIP#SPR2 62.25.11.00-000-057 IF#3 MCI#SPR1
		62.25.21-12-V AC/DC power		
			62.25.21.00-General	
				62.25.21.00-000-001 IF#0 DFP#0 62.25.21.00-000-002 IF#0 DFP#1 62.25.21.00-000-003 IF#0 DFP#2 62.25.21.00-000-004 IF#2 DFP#3 62.25.21.00-000-005 IF#0 DFP#4 62.25.21.00-000-006 IF#0 DFP#5 62.25.21.00-000-007 IF#0 DFP#6 62.25.21.00-000-008 IF#0 DFP#7 62.25.21.00-000-009 IF#0 CIP#0 62.25.21.00-000-010 IF#0 CIP#1



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				62.25.21.00-000-011 IF#0 CIP#2 62.25.21.00-000-012 IF#0 CIP#3 62.25.21.00-000-013 IF#0 MCI#0 62.25.21.00-000-014 IF#1 DFP#0 62.25.21.00-000-015 IF#2 DFP#1 62.25.21.00-000-016 IF#3 DFP#2 62.25.21.00-000-017 IF#1 DFP#3 62.25.21.00-000-018 IF#1 DFP#4 62.25.21.00-000-019 IF#1 DFP#5 62.25.21.00-000-020 IF#2 DFP#6 62.25.21.00-000-021 IF#1 DFP#7 62.25.21.00-000-022 IF#1 CIP#0 62.25.21.00-000-023 IF#2 CIP#1 62.25.21.00-000-024 IF#1 CIP#2 62.25.21.00-000-025 IF#1 CIP#3 62.25.21.00-000-026 IF#1 MCI#0 62.25.21.00-000-027 IF#2 DFP#0 62.25.21.00-000-028 IF#1 DFP#1 62.25.21.00-000-029 IF#1 DFP#2 62.25.21.00-000-030 IF#0 DFP#3 62.25.21.00-000-031 IF#2 DFP#4 62.25.21.00-000-032 IF#2 DFP#5 62.25.21.00-000-033 IF#1 DFP#6 62.25.21.00-000-034 IF#2 DFP#7 62.25.21.00-000-035 IF#2 CIP#0 62.25.21.00-000-036 IF#1 CIP#1 62.25.21.00-000-037 IF#2 CIP#2 62.25.21.00-000-038 IF#2 CIP#3 62.25.21.00-000-039 IF#2 MCI#0 62.25.21.00-000-040 IF#3 DFP#0 62.25.21.00-000-041 IF#3 DFP#1 62.25.21.00-000-042 IF#2 DFP#2 62.25.21.00-000-043 IF#3 DFP#3 62.25.21.00-000-044 IF#3 DFP#4 62.25.21.00-000-045 IF#3 DFP#5 62.25.21.00-000-046 IF#3 DFP#6



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				62.25.21.00-000-047 IF#3 DFP#7 62.25.21.00-000-048 IF#3 CIP#0 62.25.21.00-000-049 IF#3 CIP#1 62.25.21.00-000-050 IF#3 CIP#2 62.25.21.00-000-051 IF#3 CIP#3 62.25.21.00-000-052 IF#3 MCI#0 62.25.21.00-000-053 DFP#SPR1 62.25.21.00-000-054 DFP#SPR2 62.25.21.00-000-055 CIP#SPR1 62.25.21.00-000-056 CIP#SPR2 62.25.21.00-000-057 MCI#SPR1
	62.40-RSD (Reference Signal Distribution) panel			
		62.40.00-General		
			62.40.00.00-General	
				62.40.00.00-000-001 IF#0 Reference Signal Distribution
	62.45-Emergency Switch panel			
		62.45.00-General		
			62.45.00.00-General	
				62.45.00.00-000-001 IF#0 Emergency Switch 62.45.00.00-000-002 IF#1 Emergency Switch 62.45.00.00-000-003 IF#2 Emergency Switch 62.45.00.00-000-004 IF#3 Emergency Switch
	62.55-Cables			
		62.55.00-General		
			62.55.00.00-General	
		62.55.11-Internal optical data cable		
			62.55.11.00-General	
			62.55.11.01-Internal optical data cable (0.171m)	
				62.55.11.01-000-001 Cable from DFP#1 FFT P0 to CIP#0 P1 , IF#0 62.55.11.01-000-002 Cable from DFP#2 FFT P1 to CIP#1 P2 , IF#0 62.55.11.01-000-003 Cable from DFP#5 FFT P2 to CIP#2 P5 , IF#0 62.55.11.01-000-004 Cable from DFP#6 FFT P3 to CIP#3 CIP P6 , IF#0 62.55.11.01-000-005 Cable from CIP#0 MTI#8 P0 to CIP#0 MTI#9 P1 , IF#0



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				62.55.11.01-000-006 Cable from CIP#0 MTI#9 P0 to CIP#1 MTI#8 P1 , IF#0 62.55.11.01-000-007 Cable from CIP#1 MTI#8 P0 to CIP#1 MTI#9 P1 , IF#0 62.55.11.01-000-008 Cable from CIP#2 MTI#8 P0 to CIP#2 MTI#9 P1 , IF#0 62.55.11.01-000-009 Cable from CIP#2 MTI#9 P0 to CIP#3 MTI#8 P1 , IF#0 62.55.11.01-000-010 Cable from CIP#3 MTI#8 P0 to CIP#3 MTI#9 P1 , IF#0 62.55.11.01-000-011 Cable from DFP#1 FFT P0 to CIP#0 P1 , IF#1 62.55.11.01-000-012 Cable from DFP#2 FFT P1 to CIP#1 P2 , IF#1 62.55.11.01-000-013 Cable from DFP#5 FFT P2 to CIP#2 P5 , IF#1 62.55.11.01-000-014 Cable from DFP#6 FFT P3 to CIP#3 CIP P6 , IF#1 62.55.11.01-000-015 Cable from CIP#0 MTI#8 P0 to CIP#0 MTI#9 P1 , IF#1 62.55.11.01-000-016 Cable from CIP#0 MTI#9 P0 to CIP#1 MTI#8 P1 , IF#1 62.55.11.01-000-017 Cable from CIP#1 MTI#8 P0 to CIP#1 MTI#9 P1 , IF#1 62.55.11.01-000-018 Cable from CIP#2 MTI#8 P0 to CIP#2 MTI#9 P1 , IF#1 62.55.11.01-000-019 Cable from CIP#2 MTI#9 P0 to CIP#3 MTI#8 P1 , IF#1 62.55.11.01-000-020 Cable from CIP#3 MTI#8 P0 to CIP#3 MTI#9 P1 , IF#1 62.55.11.01-000-021 Cable from DFP#1 FFT P0 to CIP#0 P1 , IF#2 62.55.11.01-000-022 Cable from DFP#2 FFT P1 to CIP#1 P2 , IF#2 62.55.11.01-000-023 Cable from DFP#5 FFT P2 to CIP#2 P5 , IF#2 62.55.11.01-000-024 Cable from DFP#6 FFT P3 to CIP#3 CIP P6 , IF#2 62.55.11.01-000-025 Cable from CIP#0 MTI#8 P0 to CIP#0 MTI#9 P1 , IF#2 62.55.11.01-000-026 Cable from CIP#0 MTI#9 P0 to CIP#1 MTI#8 P1 , IF#2 62.55.11.01-000-027 Cable from CIP#1 MTI#8 P0 to CIP#1 MTI#9 P1 , IF#2 62.55.11.01-000-028 Cable from CIP#2 MTI#8 P0 to CIP#2 MTI#9 P1 , IF#2 62.55.11.01-000-029 Cable from CIP#2 MTI#9 P0 to CIP#3 MTI#8 P1 , IF#2



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				62.55.11.01-000-030 Cable from CIP#3 MTI#8 P0 to CIP#3 MTI#9 P1 , IF#2 62.55.11.01-000-031 Cable from DFP#1 FFT P0 to CIP#0 P1 , IF#3 62.55.11.01-000-032 Cable from DFP#2 FFT P1 to CIP#1 P2 , IF#3 62.55.11.01-000-033 Cable from DFP#5 FFT P2 to CIP#2 P5 , IF#3 62.55.11.01-000-034 Cable from DFP#6 FFT P3 to CIP#3 CIP P6 , IF#3 62.55.11.01-000-035 Cable from CIP#0 MTI#8 P0 to CIP#0 MTI#9 P1 , IF#3 62.55.11.01-000-036 Cable from CIP#0 MTI#9 P0 to CIP#1 MTI#8 P1 , IF#3 62.55.11.01-000-037 Cable from CIP#1 MTI#8 P0 to CIP#1 MTI#9 P1 , IF#3 62.55.11.01-000-038 Cable from CIP#2 MTI#8 P0 to CIP#2 MTI#9 P1 , IF#3 62.55.11.01-000-039 Cable from CIP#2 MTI#9 P0 to CIP#3 MTI#8 P1 , IF#3 62.55.11.01-000-040 Cable from CIP#3 MTI#8 P0 to CIP#3 MTI#9 P1 , IF#3
			62.55.11.02-Internal optical data cable (0.197m)	
				62.55.11.02-000-001 Cable from DFP#0 FFT P0 to CIP#0 P0 , IF#0 62.55.11.02-000-002 Cable from DFP#2 FFT P0 to CIP#0 P2 , IF#0 62.55.11.02-000-003 Cable from DFP#1 FFT P1 to CIP#1 P1 , IF#0 62.55.11.02-000-004 Cable from DFP#3 FFT P1 to CIP#1 P3 , IF#0 62.55.11.02-000-005 Cable from DFP#4 FFT P2 to CIP#2 P4 , IF#0 62.55.11.02-000-006 Cable from DFP#6 FFT P2 to CIP#2 P6 , IF#0 62.55.11.02-000-007 Cable from DFP#5 FFT P3 to CIP#3 CIP P5 , IF#0 62.55.11.02-000-008 Cable from DFP#7 FFT P3 to CIP#3 CIP P7 , IF#0 62.55.11.02-000-009 Cable from DFP#0 FFT P0 to CIP#0 P0 , IF#1 62.55.11.02-000-010 Cable from DFP#2 FFT P0 to CIP#0 P2 , IF#1 62.55.11.02-000-011 Cable from DFP#1 FFT P1 to CIP#1 P1 , IF#1 62.55.11.02-000-012 Cable from DFP#3 FFT P1 to CIP#1



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				P3 , IF#1 62.55.11.02-000-013 Cable from DFP#4 FFT P2 to CIP#2 P4 , IF#1 62.55.11.02-000-014 Cable from DFP#6 FFT P2 to CIP#2 P6 , IF#1 62.55.11.02-000-015 Cable from DFP#5 FFT P3 to CIP#3 CIP P5 , IF#1 62.55.11.02-000-016 Cable from DFP#7 FFT P3 to CIP#3 CIP P7 , IF#1 62.55.11.02-000-017 Cable from DFP#0 FFT P0 to CIP#0 P0 , IF#2 62.55.11.02-000-018 Cable from DFP#2 FFT P0 to CIP#0 P2 , IF#2 62.55.11.02-000-019 Cable from DFP#1 FFT P1 to CIP#1 P1 , IF#2 62.55.11.02-000-020 Cable from DFP#3 FFT P1 to CIP#1 P3 , IF#2 62.55.11.02-000-021 Cable from DFP#4 FFT P2 to CIP#2 P4 , IF#2 62.55.11.02-000-022 Cable from DFP#6 FFT P2 to CIP#2 P6 , IF#2 62.55.11.02-000-023 Cable from DFP#5 FFT P3 to CIP#3 CIP P5 , IF#2 62.55.11.02-000-024 Cable from DFP#7 FFT P3 to CIP#3 CIP P7 , IF#2 62.55.11.02-000-025 Cable from DFP#0 FFT P0 to CIP#0 P0 , IF#3 62.55.11.02-000-026 Cable from DFP#2 FFT P0 to CIP#0 P2 , IF#3 62.55.11.02-000-027 Cable from DFP#1 FFT P1 to CIP#1 P1 , IF#3 62.55.11.02-000-028 Cable from DFP#3 FFT P1 to CIP#1 P3 , IF#3 62.55.11.02-000-029 Cable from DFP#4 FFT P2 to CIP#2 P4 , IF#3 62.55.11.02-000-030 Cable from DFP#6 FFT P2 to CIP#2 P6 , IF#3 62.55.11.02-000-031 Cable from DFP#5 FFT P3 to CIP#3 CIP P5 , IF#3 62.55.11.02-000-032 Cable from DFP#7 FFT P3 to CIP#3 CIP P7 IF#3
			62.55.11.03-Internal optical data cable (0.215m)	
				62.55.11.03-000-001 Cable from DFP#3 FFT P0 to CIP#0 P3 , IF#0 62.55.11.03-000-0011 Cable from DFP#7 FFT P2 to CIP#2 P7 , IF#2 62.55.11.03-000-0015 Cable



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				from DFP#7 FFT P2 to CIP#2 P7 , IF#3 62.55.11.03-000-002 Cable from DFP#0 FFT P1 to CIP#1 P0 , IF#0 62.55.11.03-000-003 Cable from DFP#7 FFT P2 to CIP#2 P7 , IF#0 62.55.11.03-000-004 Cable from DFP#4 FFT P3 to CIP#3 CIP P4 , IF#0 62.55.11.03-000-005 Cable from DFP#3 FFT P0 to CIP#0 P3 , IF#1 62.55.11.03-000-006 Cable from DFP#0 FFT P1 to CIP#1 P0 , IF#1 62.55.11.03-000-007 Cable from DFP#7 FFT P2 to CIP#2 P7 , IF#1 62.55.11.03-000-008 Cable from DFP#4 FFT P3 to CIP#3 CIP P4 , IF#1 62.55.11.03-000-009 Cable from DFP#3 FFT P0 to CIP#0 P3 , IF#2 62.55.11.03-000-010 Cable from DFP#0 FFT P1 to CIP#1 P0 , IF#2 62.55.11.03-000-012 Cable from DFP#4 FFT P3 to CIP#3 CIP P4 , IF#2 62.55.11.03-000-013 Cable from DFP#3 FFT P0 to CIP#0 P3 , IF#3 62.55.11.03-000-014 Cable from DFP#0 FFT P1 to CIP#1 P0 , IF#3 62.55.11.03-000-016 Cable from DFP#4 FFT P3 to CIP#3 CIP P4 , IF#3
			62.55.11.04-Internal optical data cable (0.739m)	
				62.55.11.04-000-001 Cable from DFP#4 FFT P0 to CIP#0 P4 , IF#0 62.55.11.04-000-002 Cable from DFP#5 FFT P0 to CIP#0 P5 , IF#0 62.55.11.04-000-003 Cable from DFP#6 FFT P0 to CIP#0 P6 , IF#0 62.55.11.04-000-004 Cable from DFP#7 FFT P0 to CIP#0 P7 , IF#0 62.55.11.04-000-005 Cable from DFP#4 FFT P1 to CIP#1 P4 , IF#0 62.55.11.04-000-006 Cable from DFP#5 FFT P1 to CIP#1 P5 , IF#0 62.55.11.04-000-007 Cable from DFP#6 FFT P1 to CIP#1 P6 , IF#0 62.55.11.04-000-008 Cable from DFP#7 FFT P1 to CIP#1 P7 , IF#0 62.55.11.04-000-009 Cable from DFP#0 FFT P2 to CIP#2 P0 , IF#0



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				62.55.11.04-000-010 Cable from DFP#1 FFT P2 to CIP#2 P1 , IF#0 62.55.11.04-000-011 Cable from DFP#2 FFT P2 to CIP#2 P2 , IF#0 62.55.11.04-000-012 Cable from DFP#3 FFT P2 to CIP#2 P3 , IF#0 62.55.11.04-000-013 Cable from DFP#0 FFT P3 to CIP#3 CIP P0 , IF#0 62.55.11.04-000-014 Cable from DFP#1 FFT P3 to CIP#3 CIP P1 , IF#0 62.55.11.04-000-015 Cable from DFP#2 FFT P3 to CIP#3 CIP P2 , IF#0 62.55.11.04-000-016 Cable from DFP#3 FFT P3 to CIP#3 CIP P3 , IF#0 62.55.11.04-000-017 Cable from CIP#1 MTI#9 P0 to CIP#3 MTI#9 P0 , IF#0 62.55.11.04-000-018 Cable from DFP#4 FFT P0 to CIP#0 P4 , IF#1 62.55.11.04-000-019 Cable from DFP#5 FFT P0 to CIP#0 P5 , IF#1 62.55.11.04-000-020 Cable from DFP#6 FFT P0 to CIP#0 P6 , IF#1 62.55.11.04-000-021 Cable from DFP#7 FFT P0 to CIP#0 P7 , IF#1 62.55.11.04-000-022 Cable from DFP#4 FFT P1 to CIP#1 P4 , IF#1 62.55.11.04-000-023 Cable from DFP#5 FFT P1 to CIP#1 P5 , IF#1 62.55.11.04-000-024 Cable from DFP#6 FFT P1 to CIP#1 P6 , IF#1 62.55.11.04-000-025 Cable from DFP#7 FFT P1 to CIP#1 P7 , IF#1 62.55.11.04-000-026 Cable from DFP#0 FFT P2 to CIP#2 P0 , IF#1 62.55.11.04-000-027 Cable from DFP#1 FFT P2 to CIP#2 P1 , IF#1 62.55.11.04-000-028 Cable from DFP#2 FFT P2 to CIP#2 P2 , IF#1 62.55.11.04-000-029 Cable from DFP#3 FFT P2 to CIP#2 P3 , IF#1 62.55.11.04-000-030 Cable from DFP#0 FFT P3 to CIP#3 CIP P0 , IF#1 62.55.11.04-000-031 Cable from DFP#1 FFT P3 to CIP#3 CIP P1 , IF#1 62.55.11.04-000-032 Cable from DFP#2 FFT P3 to CIP#3 CIP P2 , IF#1 62.55.11.04-000-033 Cable from DFP#3 FFT P3 to CIP#3 CIP P3 , IF#1



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				62.55.11.04-000-034 Cable from CIP#1 MTI#9 P0 to CIP#3 MTI#9 P0 , IF#1 62.55.11.04-000-035 Cable from DFP#4 FFT P0 to CIP#0 P4 , IF#2 62.55.11.04-000-036 Cable from DFP#5 FFT P0 to CIP#0 P5 , IF#2 62.55.11.04-000-037 Cable from DFP#6 FFT P0 to CIP#0 P6 , IF#2 62.55.11.04-000-038 Cable from DFP#7 FFT P0 to CIP#0 P7 , IF#2 62.55.11.04-000-039 Cable from DFP#4 FFT P1 to CIP#1 P4 , IF#2 62.55.11.04-000-040 Cable from DFP#5 FFT P1 to CIP#1 P5 , IF#2 62.55.11.04-000-041 Cable from DFP#6 FFT P1 to CIP#1 P6 , IF#2 62.55.11.04-000-042 Cable from DFP#7 FFT P1 to CIP#1 P7 , IF#2 62.55.11.04-000-043 Cable from DFP#0 FFT P2 to CIP#2 P0 , IF#2 62.55.11.04-000-044 Cable from DFP#1 FFT P2 to CIP#2 P1 , IF#2 62.55.11.04-000-045 Cable from DFP#2 FFT P2 to CIP#2 P2 , IF#2 62.55.11.04-000-046 Cable from DFP#3 FFT P2 to CIP#2 P3 , IF#2 62.55.11.04-000-047 Cable from DFP#0 FFT P3 to CIP#3 CIP P0 , IF#2 62.55.11.04-000-048 Cable from DFP#1 FFT P3 to CIP#3 CIP P1 , IF#2 62.55.11.04-000-049 Cable from DFP#2 FFT P3 to CIP#3 CIP P2 , IF#2 62.55.11.04-000-050 Cable from DFP#3 FFT P3 to CIP#3 CIP P3 , IF#2 62.55.11.04-000-051 Cable from CIP#1 MTI#9 P0 to CIP#3 MTI#9 P0 , IF#2 62.55.11.04-000-052 Cable from DFP#4 FFT P0 to CIP#0 P4 , IF#3 62.55.11.04-000-053 Cable from DFP#5 FFT P0 to CIP#0 P5 , IF#3 62.55.11.04-000-054 Cable from DFP#6 FFT P0 to CIP#0 P6 , IF#3 62.55.11.04-000-055 Cable from DFP#7 FFT P0 to CIP#0 P7 , IF#3 62.55.11.04-000-056 Cable from DFP#4 FFT P1 to CIP#1 P4 , IF#3 62.55.11.04-000-057 Cable from DFP#5 FFT P1 to CIP#1 P5 , IF#3



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				62.55.11.04-000-058 Cable from DFP#6 FFT P1 to CIP#1 P6 , IF#3 62.55.11.04-000-059 Cable from DFP#7 FFT P1 to CIP#1 P7 , IF#3 62.55.11.04-000-060 Cable from DFP#0 FFT P2 to CIP#2 P0 , IF#3 62.55.11.04-000-061 Cable from DFP#1 FFT P2 to CIP#2 P1 , IF#3 62.55.11.04-000-062 Cable from DFP#2 FFT P2 to CIP#2 P2 , IF#3 62.55.11.04-000-063 Cable from DFP#3 FFT P2 to CIP#2 P3 , IF#3 62.55.11.04-000-064 Cable from DFP#0 FFT P3 to CIP#3 CIP P0 , IF#3 62.55.11.04-000-065 Cable from DFP#1 FFT P3 to CIP#3 CIP P1 , IF#3 62.55.11.04-000-066 Cable from DFP#2 FFT P3 to CIP#3 CIP P2 , IF#3 62.55.11.04-000-067 Cable from DFP#3 FFT P3 to CIP#3 CIP P3 , IF#3 62.55.11.04-000-068 Cable from CIP#1 MTI#9 P0 to CIP#3 MTI#9 P0 , IF#3
		62.55.61-External output optical data cable		
			62.55.61.00-General	
				62.55.61.00-000-001 Cable from CIP#0 MTI#8 P2 to CDPC#1 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-001 Cable from CIP#0 MTI#9 P2 to CDPC#3 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-002 Cable from CIP#1 MTI#8 P2 to CDPC#5 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-002 Cable from CIP#1 MTI#9 P2 to CDPC#7 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-003 Cable from CIP#2 MTI#8 P2 to CDPC#2 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-003 Cable from CIP#2 MTI#9 P2 to CDPC#4 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-004 Cable from CIP#3 MTI#8 P2 to CDPC#6 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-004 Cable from CIP#3 MTI#9 P2 to CDPC#8 DIP#8 P0 (To COMP RACK) , IF#0 62.55.61.00-000-005 Cable from CIP#0 MTI#8 P2 to



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				CDPC#1 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-005 Cable from CIP#0 MTI#9 P2 to CDPC#3 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-006 Cable from CIP#1 MTI#8 P2 to CDPC#5 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-006 Cable from CIP#1 MTI#9 P2 to CDPC#7 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-007 Cable from CIP#2 MTI#8 P2 to CDPC#2 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-007 Cable from CIP#2 MTI#9 P2 to CDPC#4 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-008 Cable from CIP#3 MTI#8 P2 to CDPC#6 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-008 Cable from CIP#3 MTI#9 P2 to CDPC#8 DIP#8 P0 (To COMP RACK) , IF#1 62.55.61.00-000-009 Cable from CIP#0 MTI#8 P2 to CDPC#1 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-009 Cable from CIP#0 MTI#9 P2 to CDPC#3 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-010 Cable from CIP#1 MTI#8 P2 to CDPC#5 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-010 Cable from CIP#1 MTI#9 P2 to CDPC#7 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-011 Cable from CIP#2 MTI#8 P2 to CDPC#2 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-011 Cable from CIP#2 MTI#9 P2 to CDPC#4 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-012 Cable from CIP#3 MTI#8 P2 to CDPC#6 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-012 Cable from CIP#3 MTI#9 P2 to CDPC#8 DIP#8 P0 (To COMP RACK) , IF#2 62.55.61.00-000-013 Cable from CIP#0 MTI#8 P2 to CDPC#1 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-013 Cable from CIP#0 MTI#9 P2 to CDPC#3 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-014 Cable from CIP#1 MTI#8 P2 to



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				CDPC#5 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-014 Cable from CIP#1 MTI#9 P2 to CDPC#7 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-015 Cable from CIP#2 MTI#8 P2 to CDPC#2 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-015 Cable from CIP#2 MTI#9 P2 to CDPC#4 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-016 Cable from CIP#3 MTI#8 P2 to CDPC#6 DIP#8 P0 (To COMP RACK) , IF#3 62.55.61.00-000-016 Cable from CIP#3 MTI#9 P2 to CDPC#8 DIP#8 P0 (To COMP RACK) , IF#3
		62.55.81-External input power cable		
			62.55.81.00-General	
				62.55.81.00-000-001 IF#0 DFP#0,1 External Input Power Cable 62.55.81.00-000-002 IF#0 CIP#0,1 External Input Power Cable 62.55.81.00-000-003 IF#0 DFP#2.3 External Input Power Cable 62.55.81.00-000-004 IF#0 Reserve External Input Power Cable 62.55.81.00-000-005 IF#0 EMR External Input Power Cable 62.55.81.00-000-006 IF#0 DFP#4.5 External Input Power Cable 62.55.81.00-000-007 IF#0 CIP#2.3 External Input Power Cable 62.55.81.00-000-008 IF#0 DFP#6.7 External Input Power Cable 62.55.81.00-000-009 IF#0 DFP#0,1 External Input Power Cable 62.55.81.00-000-010 IF#0 CIP#0,1 External Input Power Cable 62.55.81.00-000-011 IF#0 DFP#2.3 External Input Power Cable 62.55.81.00-000-012 IF#0 Reserve External Input Power Cable 62.55.81.00-000-013 IF#0 EMR External Input Power Cable 62.55.81.00-000-014 IF#0 DFP#4.5 External Input Power Cable 62.55.81.00-000-015 IF#0 CIP#2.3 External Input Power Cable 62.55.81.00-000-016 IF#0



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				DFP#6.7 External Input Power Cable 62.55.81.00-000-017 IF#0 DFP#0,1 External Input Power Cable 62.55.81.00-000-018 IF#0 CIP#0,1 External Input Power Cable 62.55.81.00-000-019 IF#0 DFP#2.3 External Input Power Cable 62.55.81.00-000-020 IF#0 Reserve External Input Power Cable 62.55.81.00-000-021 IF#0 EMR External Input Power Cable 62.55.81.00-000-022 IF#0 DFP#4.5 External Input Power Cable 62.55.81.00-000-023 IF#0 CIP#2.3 External Input Power Cable 62.55.81.00-000-024 IF#0 DFP#6.7 External Input Power Cable 62.55.81.00-000-025 IF#0 DFP#0,1 External Input Power Cable 62.55.81.00-000-026 IF#0 CIP#0,1 External Input Power Cable 62.55.81.00-000-027 IF#0 DFP#2.3 External Input Power Cable 62.55.81.00-000-028 IF#0 Reserve External Input Power Cable 62.55.81.00-000-029 IF#0 EMR External Input Power Cable 62.55.81.00-000-030 IF#0 DFP#4.5 External Input Power Cable 62.55.81.00-000-031 IF#0 CIP#2.3 External Input Power Cable 62.55.81.00-000-032 IF#0 DFP#6.7 External Input Power Cable
	62.60-Test facility/ Maintenance tools			
		62.60.00-General		
			62.60.00.00-General	
	62.90-Reviews			
		62.90.00-General		
			62.90.00.00-General	
63-Two antenna correlator, w/TFB				
	63.00-General			
		63.00.00-General		
			63.00.00.00-General	



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	63.01-Two antenna correlator rack assembly			
		63.01.00-General		
			63.01.00.00-General	
		63.01.01-Two antenna correlator rack		
			63.01.01.00-General	
		63.01.02-Station card		
			63.01.02.00-General	
		63.01.03-TFB filter card		
		63.01.04-6U bin power supply card		
			63.01.04.00-General	
		63.01.05-Station control card		
			63.01.05.00-General	
		63.01.06-Station Interface Card		
			63.01.06.00-General	
		63.01.08-Long term accumulator card		
			63.01.08.00-General	
		63.01.09-Quadrant control card		
			63.01.09.00-General	
		63.01.10-Correlator Interface Card		
			63.01.10.00-General	
		63.01.11-9U bin powersupply card		
			63.01.11.00-General	
		63.01.12-Mezzanine power supply card		
			63.01.12.00-General	
		63.01.13-Power supplies		
			63.01.13.00-General	
		63.01.14-Power Control card		
			63.01.14.00-General	
	63.02-Data Port Interface assembly			
		63.02.00-General		
			63.02.00.00-General	
		63.02.01-DPI interface box		
			63.02.01.00-General	
		63.02.02-DPI card		
			63.02.02.00-General	
		63.02.03-DPI power supply		
			63.02.03.00-General	
	63.03-Cables			
		63.03.01-Data		



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			63.03.01.00-General	
		63.03.02-Communications		
			63.03.02.00-General	
		63.03.03-Power		
			63.03.03.00-General	
		63.03.04-Clock and control		
			63.03.04.00-General	
64-ACA Spectrometer				
	64.10-ACA Spectrometer Module (ASM) Software			
		64.10.10-Operating system		
		64.10.20 Compute unified device architecture (CUDA) toolkit		
	64.20-ACA Spectrometer Module (ASM) Server			
		64.20.09-Rackmount kit		
		64.20.10-Server chassis		
		64.20.15-Chassis fan		
		64.20.20-Chassis power supply		
		64.20.25-Power cable		
		64.20.30-Mother board		
		64.20.35-Daughter board		
		64.20.40-SSD		
		64.20.45-Memory		
		64.20.50-CPU		
		64.20.55-CPU heatsink with fan		
		64.20.60-DRXP		
			64.20.60.10-DRXP board	
				64.20.60.10.10-DRXP main board
				64.20.60.10.20-SFP+ module
				64.20.60.10.30-DRXP (FPGA) firmware
			64.20.60.20-48msec TE bracket	
			64.20.60.30-Cables between 48msec TE bracket and DRXP board	
		64.20.70-DataCenter management package		
		64.20.80-48msec TE item		
			64.20.80.10-48msec TE external cable	
			64.20.80.20-48msec TE cable	
			64.20.80.30-48msec TE terminator	



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			64.20.80.40-48msec TE conversion cable	
70-Computing				
	70.00-General			
		70.00.00-General		
			70.00.00.00-General	
	70.02-Computers, Communications			
		70.02.00-General		
			70.02.00.10-Computer hardware	
			70.02.00.20-Communications equipment	
			70.02.00.30-General software	
	70.05-Management			
		70.05.00-General		
			70.05.00.00-General	
	70.10-Science Software Requirements			
		70.10.00-General		
			70.10.00.00-General	
	70.15-High Level Analysis			
		70.15.00-General		
			70.15.00.00-General	
	70.20-Software Engineering			
		70.20.00-General		
			70.20.00.00-General	
		70.20.10-Coding Standards		
			70.20.10.00-General	
	70.25-Common Software			
		70.25.00-General		
			70.25.00.00-General	
	70.30-Executive Software			
		70.30.00-General		
			70.30.00.00-General	
	70.35-Control Software			
		70.35.05-General		
			70.35.05.00-General	
		70.35.10-Common Hardware		
			70.35.10.00-General	
			70.35.10.01-AMBSI-1	
			70.35.10.02-AMBSI-2	
			70.35.10.03-ALMA M&C Bus	



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			70.35.10.04-AMBSI-2 Tester	
			70.35.10.05-AMB Backpanel	
			70.35.10.06-Ethernet Controlled Power Strip	
			70.35.10.07-Receiver Cabin Ethernet Switch	
			70.35.10.08-GPS	
			70.35.10.09-GPS Antenna	
			70.35.10.10-Array Control Computer (ACC)	
			70.35.10.11-Antenna Bus Master (ABM)	
			70.35.10.12-Array Real Time Machine (ARTM)	
			70.35.10.13-DTS M&C Computer (DMC)	
		70.35.20-Antenna Hardware		
			70.35.20.00-General	
		70.35.25-Front End Hardware		
			70.35.25.00-General	
		70.35.30-Back End Hardware		
			70.35.30.00-General	
		70.35.35-Correlator Hardware		
			70.35.35.00-General	
		70.35.40-Misc. Hardware		
			70.35.40.00-General	
		70.35.50-Meetings		
			70.35.50.00-General	
			70.35.50.01-Weekly Coordination Meetings	
		70.35.60-Software Packages		
			70.35.60.00-General	
			70.35.60.01-Master Controller	
			70.35.60.02-Array Controller	
			70.35.60.03-Manual Controller	
			70.35.60.04-Device	
			70.35.60.05-Monitor	
			70.35.60.06-Operator	
			70.35.60.07-State Model	
		70.35.70-Technologies		
			70.35.70.00-General	
			70.35.70.01-CAN	



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			70.35.70.10-CORBA	
			70.35.70.11-XML	
			70.35.70.20-C++	
			70.35.70.21-Python	
			70.35.70.22-Java	
	70.40-Correlator Software			
		70.40.00-General		
			70.40.00.00-General	
	70.42-ACA Correlator Software			
		70.42.00-General		
			70.42.00.00-General	
	70.44-ACA Spectrometer Control (ASC) Subsystem			
		70.44.10-ACA Spectrometer Control (ASC) Software		
		70.44.20-ACA Spectrometer Control (ASC) Server		
		70.44.30-Network switch		
		70.44.40-Power Distribution Unit (PDU)		
		70.44.50-Ethernet cable		
	70.45-Pipeline Software			
		70.45.00-General		
			70.45.00.00-General	
	70.50-Archiving			
		70.50.00-General		
			70.50.00.00-General	
	70.55-Scheduling			
		70.55.00-General		
			70.55.00.00-General	
	70.60-Observing Preparation and Support			
		70.60.00-General		
			70.60.00.00-General	
	70.65-Off-line Data Processing/Analysis			
		70.65.00-General		
			70.65.00.00-General	
	70.70-Data Reduction User Interface			
		70.70.00-General		
			70.70.00.00-General	
	70.75-Telescope Calibration			



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			70.75.00.00-General	
	70.80-Integration, Test and Support			
		70.80.00-General		
			70.80.00.00-General	
	70.85-Obsevatory Operations Support			
80-System Engineering				
	80.00-General			
		80.00.00-General		
			80.00.00.00-General	
		80.00.01-ACA		
			80.00.01.00-General	
	80.01-System Engineering Management			
		80.01.00-General		
			80.01.00.00-General	
		80.01.01-ACA		
			80.01.01.00-General	
	80.02-Computerized Management System			
		80.02.00-General		
			80.02.00.00-General	
	80.03-Product Tree Structure			
		80.03.00-General		
			80.03.00.00-General	
	80.04-System Design			
		80.04.00-General		
			80.04.00.00-General	
		80.04.01-Project Block Diagram		
			80.04.01.00-General	
		80.04.02-End-End Modeling		
			80.04.02.00-General	
		80.04.03-System Budgets		
			80.04.03.00-General	
		80.04.04-ACA		
			80.04.04.00-General	
		80.04.05-ALMA Monitor and Control Systems		
			80.04.05.00-General	
			80.04.05.01-Mobile Command Post	
			80.04.05.02-Array Infrastructure Operations Centre	



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			80.04.05.03-Global SCADA	
	80.05-Project Standards			
		80.05.00-General		
			80.05.00.00-General	
		80.05.01-EMC Standards		
			80.05.01.00-General	
		80.05.02-Environmental Standards		
			80.05.02.00-General	
	80.06-Change Request Procedures (void)			
		80.06.00-General		
			80.06.00.00-General	
	80.07-ICD Management			
		80.07.00-General		
			80.07.00.00-General	
	80.08-RAMS			
		80.08.00-General		
			80.08.00.00-General	
		80.08.01-ACA		
			80.08.01.00-General	
	80.09-Design Review Policies and Procedures			
		80.09.00-General		
			80.09.00.00-General	
	80.10-Requirements			
		80.10.00-General		
			80.10.00.00-General	
		80.10.01-ACA		
			80.10.01.00-General	
	80.11-Product Assurance			
		80.11.00-General		
			80.11.00.00-General	
		80.11.01-Product Assurance Process Descriptions		
			80.11.01.00-General	
			80.11.01.01-ALMA Main Array	
			80.11.01.02-ALMA Compact Array	
	80.12-Enclosures			
		80.12.01-OCU Enclosures		
			80.12.01.00-General	
			80.12.01.00-General	



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			80.12.01.01-OCU Enclosures mechanical	
			80.12.01.02-OCU Enclosures Electrical	
			80.12.01.02-ICU Enclosures Electrical	
			80.12.01.03-ICU Enclosure Control	
	80.13-Cryogenic Auxiliary Equipment			
		80.13.00-General		
		80.13.01-AEM		
			80.13.01.00-General	
		80.13.02-Vertex		
			80.13.02.00-General	
		80.13.03-ACA		
			80.13.03.00-General	
	80.14-Document Tree			
		80.14.00-Document Tree		
	80.15-Membrane			
		80.15.00-General		
			80.15.00.00-General	
		80.15.01-FEP Membrane		
			80.15.01.00-General	
		80.15.02-Goretex Membrane		
			80.15.02.00-General	
	80.90-System Engineering Design Reviews			
		80.90.00-General		
			80.90.00.00-General	
		80.90.01-Cryogenic Auxiliary Equipment CDMR		
			80.90.01.00-General	
			80.90.01.01-Panel Documents	
	80.95-System Engineering Meetings			
		80.95.00-General		
			80.95.00.00-General	
85-System Integration				
	85.00-General			
		85.00.00-General		
			85.00.00.00-General	
			85.00.00.01-DV - ALMA 12-m (Vertex) Antennas	



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			85.00.00.02-DA - ALMA 12-m (AEM) Antennas	
			85.00.00.03-PM - ALMA ACA 12-m TP (Total Power Array) Antennas	
			85.00.00.04-CM - ALMA ACA 7-m Antennas	
	85.01-Management			
		85.01.00-General		
			85.01.00.00-General	
	85.90-System Integration Design Reviews			
		85.90.00-General		
			85.90.00.00-General	
88-System Verification				
	88.00 General			
		88.00.00 General		
			88.00.00.00 General	
90-Science				
	90.00-General			
		90.00.00-General		
			90.00.00.00-General	
	90.01-ASAC Documents			
		90.01.00-General		
			90.01.00.00-General	
	90.02-Configuration			
		90.02.00-General		
			90.02.00.00-General	
	90.03-Calibration			
		90.03.00-General		
			90.03.00.00-General	
		90.03.01-Amplitude		
			90.03.01.00-General	
		90.03.02-Phase		
			90.03.02.00-General	
		90.03.03-Total Power		
			90.03.03.00-General	
		90.03.04-Other		
			90.03.04.00-General	
	90.04-Imaging			
		90.04.00-General		
			90.04.00.00-General	



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		90.04.01-Simulation		
			90.04.01.00-General	
		90.04.02-Techniques		
			90.04.02.00-General	
	90.05-Site Characterization			
		90.05.00-General		
			90.05.00.00-General	
		90.05.01-NRAO container		
			90.05.01.00-General	
			90.05.01.01-Photovoltaic system	
		90.05.02-ESO container 1		
			90.05.02.00-General	
			90.05.02.01-Photovoltaic system	
		90.05.03-ESO container 2		
			90.05.03.00-General	
			90.05.03.01-Photovoltaic system	
		90.05.04-Radiosonde container		
			90.05.04.00-General	
			90.05.04.01-Photovoltaic system	
		90.05.05-Container Network Systems		
			90.05.05.00-General	
			90.05.05.01-Computer Network	
			90.05.05.02- Communications Network	
		90.05.06-225 GHz tipping radiometer		
			90.05.06.00-General	
		90.05.07-11.2 GHz interferometer		
			90.05.07.00-General	
		90.05.08-183 GHz radiometers		
			90.05.08.00-General	
		90.05.09-Submm tipping radiometer		
			90.05.09.00-General	
		90.05.10-Frost point hygrometer		
			90.05.10.00-General	
		90.05.11-Weather stations		
			90.05.11.00-General	
			90.05.11.01-Davis	
			90.05.11.02-Monitor Sensors	
			90.05.11.03-Other weather instruments	



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		90.05.12-Radiosonde equipment		
			90.05.12.00-General	
		90.05.13-Other instruments		
			90.05.13.00-General	
			90.05.13.01-Lightning detector	
			90.05.13.02-Surveillance camera	
			90.05.13.03-GPS receivers	
	90.60-Ancillary Equipment			
		90.60.00-General		
			90.60.00.00-General	
	90.61-Temporary Wind Sensor			
		90.61.00-General		
			90.61.00.00-General	
		90.61.10-Technical Documentation		
			90.61.10.00-General	
		90.61.20-Science Reports		
			90.61.20.00-General	
		90.61.30-Hardware		
			90.61.30.00-General	
			90.61.30.10-Masts	
			90.61.30.20-Mechanical parts for Installation	
		90.61.40-Lightning Protection System Components		
			90.61.40.00-General	
		90.61.50-Electrical		
			90.61.50.00-General	
		90.61.60-Data Transmission		
			90.61.60.00-General	
		90.61.70-Wind Sensors		
			90.61.70.00-General	
		90.61.80-Software		
			90.61.80.00-General	
	90.62-Central Meteorological Station			
		90.62.00-General		
			90.62.00.00-General	
		90.62.10-Technical Documentation		
			90.62.10.00-General	
		90.62.20-Science Reports		
			90.62.20.00-General	



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			90.62.30.00-General	
			90.62.30.10-Masts	
			90.62.30.20-Shelter	
			90.62.30.30-Mechanical Parts for Installation	
		90.62.40-Lightning Protection System components		
			90.62.40.00-General	
		90.62.50-Data Transmission		
			90.62.50.00-General	
		90.62.60-Meteorological sensors		
			90.62.60.00-General	
			90.62.60.10-Vaisala Sensors	
			90.62.60.20-Vaisala Power Supply	
		90.62.70-Software		
			90.62.70.00-General	
	90.63-Remote Meteorological Station			
		90.63.00-General		
			90.63.00.00-General	
		90.63.10-Technical Documentation		
			90.63.10.00-General	
		90.63.20-Science Reports		
			90.63.20.00-General	
		90.63.30-Equipment		
			90.63.30.00-General	
			90.63.30.10-Hardware	
			90.63.30.20-Masts	
			90.63.30.30-Mechanical Parts for Installation	
		90.63.40-Lightning Protection System Components		
			90.63.40.00-General	
		90.63.50-Electrical		
			90.63.50.00-General	
		90.63.60-Data Transmission		
			90.63.60.00-General	
		90.63.70-Meteorological Sensors		
			90.63.70.00-General	
		90.63.80-Software		
			90.63.80.00-General	
	90.64-Cloud Monitor			



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			90.64.00.00-General	
	90.65-WVR Installation for Weather Station			
		90.65.00-General		
			90.65.00.00-General	
	90.66-Atmospheric Temperature Profiler			
		90.66.00-General		
			90.66.00.00-General	
	90.67-Phase Fluctuation Monitoring Interferometer			
		90.67.00-General		
			90.67.00.00-General	
	90.68-Seismometer			
		90.68.00-General		
			90.68.00.00-General	
	90.69-Ozone Monitor			
		90.69.00-General		
			90.69.00.00-General	
	90.70-Fourier Transform Spectrometer			
		90.70.00-General		
			90.70.00.00-General	
	90.71-230 GHz Tipping Radiometer			
		90.71.00-General		
			90.71.00.00-General	
	90.72-Sub-mm Tipping Radiometer			
		90.72.00-General		
			90.72.00.00-General	
	90.73-Water Vapour Isotope Ratio Monitor			
		90.73.00-General		
			90.73.00.00-General	
	90.74-Aerosol and Dust Sampler			
		90.74.00-General		
			90.74.00.00-General	